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A BERKLEY MEDALLION BOOK

THE SEEDS OF OUR CIVILIZATION WERE SOWN BY

**Those
Gods Who
Made
Heaven &
Earth**

THE EVIDENCE FOR ALIEN
VISITORS TO EARTH BEFORE
THE DAWN OF HISTORY

Jean Sardy

THIS IS NOT SCIENCE FICTION:

Everything during the long journey, marked by births and deaths, had happened according to plan. Fifteen couples had left without hope of return, and there were still fifteen couples as the spacecraft approached the planetary system that was its destination: our planetary system—The Solar System.

It had left a planet revolving around a star several hundred light-years away. Its occupants, and their descendents, were to become the gods whose memory is preserved in the Myth of the First Civilizations.

They arrived at their destination—Earth—about twenty-three thousand five hundred years ago.

"In the beginning God created heaven and earth." That is how it has been translated, but the translation is inaccurate. There is no man with a little education who does not know that the text reads, "In the beginning the gods made heaven and earth."

To Voltaire, who wrote the above in his Philosophical Dictionary, under "Genesis," I dedicate this book as a tribute whose sincerity should be viewed with Voltairian skepticism.

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**THOSE GODS
WHO MADE
HEAVEN AND
EARTH**

The Novel of the Bible

JEAN SENDY

Translated by Lowell Bair

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You will be like gods.
Genesis 3.5

HOW CREDIBLE CAN A "NOVEL" BE?

Since the last paleotherium died twelve million years ago and the human race began about one million years ago, asking whether early human beings might have come across a paleotherium would be as absurd as asking a hundred-year-old man if he had ever met Charlemagne, who died twelve centuries ago. But all we have to do is open a book to learn more about Charlemagne than most of his contemporaries knew about him.

Optimists say that what we know about Charlemagne constitutes history, and that if we know more about him than most of his contemporaries did, it proves that history needs perspective to judge people and events. More lucid minds feel that what we know about Charlemagne is composed of a "novelistic" covering on a fragile skeleton reconstructed from generally uncertain evidence.

This does not mean that a novel cannot conform to historical truth, as is shown by the example of Cuvier (1769-1832), a naturalist who lacked neither boldness nor imagination, the dominant qualities of a good novelist. With a few fossil bones he reconstructed an animal that had long been extinct and christened it the paleotherium. For his reconstruction he had only some incomplete mandibles and a piece of skull found together, a scapula, a humerus, an ulna and a front foot found elsewhere, and 11 portions of skeletons from still another place.

His method could not have been better designed to arouse the scorn of timorous academics: his "law of correlation," on the basis of which he built bridges from one solid fact to another, was a law that he had formulated himself, and his reconstructed skeleton was meant to confirm both the general law and the particular case of the paleotherium. But his boldness was vindicated after his death, when several complete paleotherium skeletons were found.

I have tried to reconstruct the remote past in which the Hebrew Tradition originated. Since my data are as fragmentary as those that Cuvier had at his disposal for his paleotherium, I felt it would be more honest for me to call my attempt a "novel." Not everyone can be a Cuvier, and the bridges I have built to connect my data are not necessarily as solid as his.

The hypothesis that forms the structure of this book is founded on portions of the Bible, read as Schliemann read Homer.

Heinrich Schliemann (1822-1890), son of a poor German preacher, started out in life as a grocer's clerk in Fiirstenberg, where he made friends with an eccentric young man named Niederhoffer who was fascinated by ancient Greek and recited Homer in the original.

They both saved money from their salaries to pursue their studies. Schliemann learned foreign languages, which eventually led him to St. Petersburg as the representative of an industrial firm. In Russia, he made a fortune and developed what was to be a lifelong obsession with the Iliad and the Odyssey, which at that

time were regarded as fanciful, poetic stories, like fairy tales. Schliemann became convinced that they were historical narratives. Everyone laughed in his face. In 1856 he began seriously studying ancient Greek. When he was finally able to read Homer in the original, his fixed idea was strengthened still more.

From 1858 on, he devoted himself entirely to that idea. He traveled and made useful connections. In 1863 he came to Paris to study archaeology and its methods. In 1871 he obtained a permit to excavate at Hissarlik, Turkey. After reading and rereading Homer, he had come to believe that this was where Hector's Troy had been. He was almost the only man in the world who thought it had ever really existed.

And he succeeded. He uncovered the ruins of Troy, proving that for two thousand years the most reputable Hellenists had been propagating false ideas because they refused to see anything but groundless legends in the Iliad and the Odyssey.

What Schliemann did for Homer was exactly what I have tried to do for the Biblical narrative that concerns me.

Reading the Bible as Schliemann read Homer means ignoring all the exegeses that have accumulated around it for the past two thousand years. Their avowed purpose is to seek proof of the existence of God in the Bible. To someone who reads the Bible "a la Schliemann," on the assumption that the text is to be taken in its most concrete sense, God is as far outside the subject as the religious beliefs of the Greeks and Trojans were to Schliemann.

When we read the Bible in that way, we must first note that the Hebrew word Elohim, usually translated as "God," is a plural. If we read "Those who came from the sky," or "the Celestials," each time the plural Elohim occurs, we find ourselves reading a narrative that needs no exegesis, no helpful prodding, no religious conviction, in order to be thoroughly coherent.

Voltaire knew that a Hebrew word meaning "gods" had been translated as "God," but people who now claim intellectual kinship with Voltaire have forgotten it.

Read in this way, Genesis appears as an account of the arrival of perfectly concrete Celestials, physically in our image, who behaved on earth as we can imagine our own astronauts behaving on another planet in a future that is still far off but no longer belongs to the realm of science fiction.

If the meaning of the story is so clear, why was Voltaire unaware of it, and why does it still have to be demonstrated today?

The answer is quite simple. Voltaire knew what was obvious to any "man with a Utile education," namely, that the creation of the world is attributed to "gods" in the original Hebrew of the Bible, but he reasoned as an eighteenth-century humanist, to whom any idea of space travelers would have been medieval drivel.

The Hebrew text said "gods," rather than the usual translation of "God," but what of it? To an eighteenth-century mind, this was only a variation on a pagan story. It was not a clue to any rational interpretation until the development of space technology enabled us to imagine the "gods" as two-legged mammalian astronauts who arrived at a time which various concordances seem to place at about 21,000 B.C. Voltaire made the mistake of trying to explain in terms of eighteenth-century science an account that did not become understandable until about 1960.

With our present knowledge, the text appears perfectly coherent when it is read as describing the arrival of "gods" at a date near 21,000 B.C. and the departure of their descendants a few thousand years later. That is what I am proposing: to read Genesis as an historical narrative, and to note how a text already ancient in the time of Christ takes on coherence in the light of the scientific knowledge of a human race that is now producing its own astronauts.

This coherence does not, of course, prove that Genesis is an historical narrative. But it is more than sufficient to justify asking this question: Is Genesis a myth whose consistency with modern scientific knowledge is a matter of pure chance, or is it an historical narrative consistent with that knowledge for logical reasons?

As things stand now, no one can say with certainty whether Genesis is a sacred legend created by prophetic imagination or the factual story of a group of astronauts who came to our planet thousands of years ago. But it does provide the possibility of conclusively proving or disproving my hypothesis: in Chapter 9, where Noah's descendants are promised a "bow" that will be "set in the cloud."

Am I wrong to give that "bow" a concrete meaning 14 when it may be only a symbol within a myth? It is possible. Am I wrong even to try to connect that myth with scientific knowledge? That is also possible.

Excellent theologians accept my way of reading the Bible, and excellent scientists do not reject the concordances that I propose. It is therefore possible that I am right.

At the end of this first chapter, I offer what appears to be a choice between two articles of faith: to believe that Genesis has a rational foundation, or to believe that it has none. The object of this book is to give the reader an overall view of the problem and enable him to form his own judgment of the reasons which, in my opinion, justify the conclusion that Genesis relates actual historical events.

My hypothesis will soon be either confirmed or invalidated. If I have read the text correctly, the "bow of the covenant" is a physical object that is now on the moon. If it is discovered there, it will be enough to demonstrate that other astronauts landed on the moon before us and built relay stations like the ones we are planning to build.

The Novel of the Bible is based on that possibility of confirmation in the near future.

2

SCIENCE AND ARTICLES OF FAITH

When excavations somewhere in the world bring to light a human skeleton twenty-five thousand years old, it seems important enough to interest the newspapers; when it leads to the discovery of a site that was inhabited in prehistoric times, the story becomes a major news item, to specialists as well as laymen. The specialist tries to estimate how much the discovery will add to our knowledge of the Upper Paleolithic; the layman is a little more solidly anchored in the false idea that twenty-five thousand years ago a handful of people who were not yet quite human lived on a planet teeming with strange animals.

Twenty-two or twenty-three thousand years before Christ, in the middle of the Upper Paleolithic, there were something like a million people on earth. They were fully human, because anthropologists date the appearance of Homo sapiens at about thirty-five thousand years ago.

As is often the case with simple statements, this one covers a number of complexities. First of all, there was actually no "appearance" of a new species, but a kind of succession, a taking over of a common heritage.* About a hundred thousand years ago a human population began spreading in central Europe and the Near East. It had such a wide "range of variability" that the remains of some individuals show traces of regressive forms while others are already close to Homo sapiens. It is not at all absurd to imagine the period known as the Middle Paleolithic (a hundred thousand to thirty-five thousand years ago) in the light of Darwin's concept of evolution: a struggle for survival, with the gradual weeding-out of the less intelligent, whether by direct physical elimination or as a result of the fact that they were more likely to die without descendants because they had failed to find a mate. So much for the "appearance" of Homo sapiens. We must still define him.

As long as experiments had not discredited the Marthe Chollot-Legoux has published a short, clear book, *Arts et Techniques de la Préhistoire*, from which I will borrow often, without specific acknowledgment, to avoid cluttering my text with footnotes. I cannot recommend it too highly. The same is true of Professor André Leroi-Gourhan's books, notably *Le Geste et la Parole*. I will shamelessly borrow from them, too, because it is scarcely possible to talk seriously about archaeology without referring, directly or indirectly, to Leroi-Gourhan's work. 16 "mechanistic" view of an animal as a machine moved by instinct, one could maintain that humanization began with the appearance of the tool, in its most rudimentary form.

That is no longer tenable. When they are given a disassembled jointed rod, some monkeys put its pieces together to form a long pole with which they can reach a banana—clearly an incipient phase of toolmaking. But in no case does a mammal other than man keep a tool that was used yesterday, may be used

tomorrow, but has no use today. Establishing a similarity between yesterday and tomorrow, when there is a break in continuity today, presupposes the notion of time, and everything seems to indicate that the notion of time is limited to man (among mammals, that is: ants and bees may have it).

But "keeping for tomorrow what one does not need today" is, according to sociologists, the first symptom of a bourgeois outlook. It therefore seems reasonable to state that humanization begins with a bourgeois outlook.

Some of my friends are pained to hear me say such things. And I worsen my offense by reminding them that the main cause of our present difficulties is progress, modernism:

everything was much easier in the eighteenth century, when there was no need to demonstrate the differences between men and animals, when there were almost no problems about the age of the world, and when it was generally acknowledged that God (or the gods) had created the world on October 29, 4004 B.C.

Without going to more trouble than the subject warrants, I have tried to determine what led the Church to rectify the date of creation on which the Hebrew calendar is based:

October 7, 3761 B.C. I have found nothing convincing, and neither have I been able to learn how the Russian Orthodox Church reached the conclusion that the world was fifteen centuries older than the Occidentals believed: until the reform decreed by Peter the Great at the beginning of the eighteenth century, Russia had a calendar in which the year 1699 was called 7208, since the Orthodox clergy knew beyond question that God had created the world in 5509 B.C.

Jacques Boucher de Perthes (1788-1868), an amateur naturalist, disrupted those pleasant certainties. For reasons of his own, he decided that certain pieces of flint which he had unearthed near Abbeville, France, had been fashioned by men who lived a long, long time ago, many thousands of years before the world was supposed to have been created by God. Boucher de Perthes had great difficulty in getting anyone to take him seriously.

Eventually, however, he succeeded. It is now accepted that the first biped that made a tool appeared about six hundred thousand years ago. He is called *Homo faber*, the "artisan." Did he already have that sense of property which, it seems to me, marks the beginning of humanization better than anything else? Apparently so. He seems to have achieved ownership with the major drawback that it involves for all neophytes: he became a slave to his possessions.

As soon as our remote ancestor discovered that a piece of chipped flint could make him the equal of animals he previously had to avoid, he became a slave to regions where flint could be found, just as a farmer is a slave to tillable land and a new homeowner is a slave to the bank that holds his mortgage.

For four hundred thousand years our ancestors had a serf mentality: it never occurred to them to try to do better than their fathers or grandfathers. Wherever traces of Homo faber's presence are found, there are flint tools made by methods that remained almost as changeless as those used by ants in making anthills.

But only almost as changeless, because a certain development can be discerned all through the Lower Paleolithic (six hundred thousand to one hundred thousand years ago), and toward the end of that period it culminated in an undeniable improvement: a method of preparing the flint core so that flakes could be removed from it more easily. With the development of that method it is no longer possible to doubt the existence of logical thought.

By the beginning of the Middle Paleolithic, a hundred thousand years ago, the decisive turn had been taken. The Middle Paleolithic is also marked by the appearance of the first sepulchers. Our direct ancestor, Homo sapiens, the "logician," had arrived. When he had almost completely displaced populations with regressive tendencies, about thirty-five thousand years ago, the Upper Paleolithic began. It lasted till 10,000 B.C.

Andre Leroi-Gourkan has pointed out that miniaturization is an essential criterion of intellectual progress. At the beginning of the Lower Paleolithic, Homo faber obtained less than two inches of usable cutting edge per pound of flint; at the end of the Upper Paleolithic, Homo sapiens obtained nine to thirty feet per pound. By the middle of the Upper Paleolithic, around 22,000 B.C., man was already able to escape from subsjection to flint "mines." He could become a nomad again, carrying all the weapons and tools he needed, and sometimes fitting them with handles made of wood that he gathered wherever he happened to be.

Thus by 22,000 B.C. men could go to attack the natives of territories they wanted to colonize, territories where there was no flint, but where the booty was rich. "From the beginning of the Gravettian, about twenty-five thousand years ago," says Leroi-Gourkan, "the wastage of flint was reduced to almost nothing." That technical advance enabled man to go on long expeditions with only a few pounds of flint. When cutting edges became dulled, they could be sharpened, and the flint removed from large tools could be used for making small ones.

The men of 22,000 B.C. were not the masters of the earth. Overlooking that fact distorts any idea we can form of prehistoric times. Men considered themselves lucky if they could survive in the vicinity of animals superior to them in size and strength, though fortunately incapable of evolving toward toolmaking and bourgeois principles. In 22,000 B.C., any idea of giving man dominion over "the fish in the sea, the birds of heaven, the cattle, all wild animals on earth, and all reptiles that crawl upon the earth" (to use the language of the Bible) would have been inconceivable. Living on equal terms with the animals he dreaded was as far as man's dreams went. The Biblical promise of giving him authority over all animal life would have sounded like demagogic rhetoric.

It would be a mistake to conclude from what has been said in this chapter that we have adequate knowledge of man's origin. There is very little solid evidence on which to build even theories. It is probable that the human race is the product of slow evolution from elementary life forms. But as soon as we venture further and ask, for example, how life came to appear on a planet that had previously been composed solely of lifeless matter, we are in the realm of pure speculation.

Living organisms are divided into two broad categories: plants and animals. Animals can feed only on organic matter from plants or other animals. Plants draw their substance from inorganic matter. It is therefore logical to assume that plant life appeared before animal life. But the oldest traces of plant life yet discovered date only from the Silurian (less than five hundred million years ago), while fossilized traces of mollusks from the Precambrian (more than six hundred million years ago) have been found.

Shall we rely solely on the empirical evidence and conclude that for more than a hundred million years the earth was inhabited by animals that fed on minerals? Or shall we place logic above the empirical evidence and conclude that if no trace of plants older than the first mollusks has yet been found, it means only that the search has been inadequate or that plants leave less discernible traces than animals?

However far back we go in history, we find an opposition between these two modes of thought: for some people, only what is empirically verified can be taken into consideration; for others, hypotheses based on logic are valid even if they have not yet been empirically verified.

In all ages the first group, the Cautious, have claimed a monopoly on science; in all ages they have been assailed by the Daring, who alone are capable of formulating hypotheses meant to be proved or disproved.

The Cautious regard the Daring as charlatans. "A hypothesis that will be disproved is better than no hypothesis at all," said the daring Mendeleev. The Cautious considered him a visionary when, in the nineteenth century, he proposed his "classification of the chemical elements," an amazing intuition whose remarkable accuracy has been confirmed in the twentieth century.

As for the appearance of life on earth, modern biologists, despite a total absence of empirical proof, have resolutely decided in favor of daring and logic: they maintain that plants necessarily appeared before animals, and that the reason for our present lack of confirming evidence is simply that no one has yet been lucky enough to find any.

But—and I stress this because the Cautious do their best to conceal it—modern biology has boldly plunged into the realm of the probable from a springboard that the Cautious scornfully describe as "conjectural." The Daring regard the conjectural as a necessity.

Dating from the Silurian (about four hundred fifty million years ago), along with traces of the oldest known plants, we also find traces of highly developed

animals: the first vertebrate fish, the first insects. And from the Silurian onward, the discoveries and theories of geologists and paleontologists are harmoniously linked together to form the chain of evolution.

In some places it seems a little too harmonious, a little too sure. "Too often in prehistory, certainties are produced by the late ripening of impressions that have become unverifiable," notes Leroi-Gourhan, whose humor is always constructive. But whether the accepted version of evolution is rigorously true or occasionally embellished is only a detail. There is no longer any serious opposition to the basic principle that life evolves from elementary forms toward forms that are increasingly complex, diversified and efficient.

But what is it that makes elementary forms of life evolve toward increasingly complex, diversified and efficient forms? None of the proposed explanations seems convincing if its surface is scratched a little, whether it is a theory that satisfies religious believers or one that is uncompromisingly atheistic.

And it is not a question of the "initial spark" which supposedly made life burst forth on a planet composed entirely of lifeless matter. Stanley L. Miller believes he has already obtained that initial spark in his laboratory at the University of Chicago, where he reproduced the conditions that presumably existed on earth before the appearance of life.

Other scientists, notably in the Soviet Union, believe they have achieved the same result.

To state positively that life appeared on earth without any necessity of "divine intervention," scientists are waiting only for positive confirmation that conditions at the time of its appearance were the same as those that Stanley L. Miller and his successors have reproduced in their laboratories. Meanwhile they continue experimenting with the whole range of conceivable original conditions. But they have no thought, even in the Soviet Union, of proving in this way that "God does not exist"; they are simply trying to set off the "initial spark" in their laboratories so that they can then study the life thus obtained and try to reproduce its evolution toward increasingly complex, diversified and efficient forms.

The problem of the initial spark is a problem of pure biology; the attempt to make it into a metaphysical problem is part of the heavy heritage left to us by the nineteenth century.

But since there are still clever charlatans who occasionally put that false problem back in circulation, it is useful to recall that Teilhard de Chardin demolished it once and for all. He maintained that each quantum, each "grain" of matter is bound to a spiritual quantum. Under certain conditions, life appears in matter as an image appears on a photosensitive surface when it is immersed in a suitable developer; the initial spark is supplied by the lifeless matter of the developer acting on the lifeless matter of the photosensitive surface.

This theory can be either accepted or rejected, but one fact remains: thanks to

Teilhard de Chardin, a Christian biologist can serenely try to make life arise from lifeless matter in his laboratory, and prepare to say "Thank God!" if he succeeds. When he tries to give life to inorganic matter, he is as far from intending to substitute himself for his God as a laboratory worker is from believing that he is taking photographs when he develops negatives from a stranger's camera.

The problem of the origin of life still exists, of course, but it is beyond our scope, like the solution of a fifth-degree equation to a child in grammar school. There are plenty of charlatans who offer schoolchildren magic methods that will enable them to learn everything with little effort. I am not one of those charlatans, so this book is systematically limited to what you and I can understand. On our level, we can note that life appeared on earth, that it persisted there, that it evolved, and that its evolution eventually led to the highly relative perfection of the species to which we belong.

How did evolution go about doing that?

In his book *L'Origine des Espices*, Emile Guyenot urges pontificating pedants to be a little more modest: "Let us consider the formation of the eye. Was it by chance that the brain produced an optic vesicle and the skin was transformed by contact with it, engendering a crystalline lens? By chance that rows of muscle cells grouped themselves and constructed muscles which were inserted at propitious points and happened to be the motory muscles of the eyeball? By chance that countless nerve fibers, making their way through the embryonic tissues, came to innervate those muscles and organs of the eye, and that the cells from which they emanated contracted the multiple and complex articulations which made possible the reflexes that happened to be indispensable: dilation or contraction of the iris, coordinated movements of both eyes, accommodation of the crystalline lens, blinking of the eyelids, secretion of tears, etc.? By chance that a cornea, a sclera, a socket, an eyelid, eyelashes and a nasolachrymal duct were formed? If so, it was a prodigious and truly providential series of accidents! The mutationist explanation comes up against a veritable impossibility."

Within the framework established by geology and paleontology, it is scarcely debatable that life appears to have evolved exactly as it would evolve in a laboratory where biologists experimentally obtained the "initial spark" and then, by trial and error, sought to create the most complex, diversified and efficient living forms, without fearing to make bold experiments leading to monstrous forms that were allowed to survive and eventually die out, thus providing detailed knowledge of mistakes to be avoided in the future.

"Mutations, the only known evolutionary process," says Emile Guyenot, "nearly always correspond to phenomena of regression or repetition. [...] Not one of them has ever produced a new organ."

If new organs can be explained by neither chance nor mutations, where do they come from?

Can we accept the idea of a Creator who does not know where he is going, who experiments, obtains monsters, tries something else, and amuses himself by creating an array of models as ludicrous as the penguin, the kangaroo and the chameleon, as small as the bacterium, as bulky as the hippopotamus, successor to the botched diplodocus, and as whimsical as man, capable of asking such questions? It seems impossible, or at least sacrilegious and blasphemous; it is an example of anthropomorphism, a kind of faulty reasoning that attributes to God the behavior of a moderately intelligent human being.

Albert Ducrocq is not a scientist; he is a chronicler who has never formulated a hypothesis of his own throughout his whole career. His book *Le Roman de la Vie* expounds the theory of "natural cybernetics." It is a convincing theory while one is reading an exposition of it; its only flaw is that it does not stand up under examination. Ducrocq's books represent what the most sensible students complain about in French universities:

"authoritarian courses" that allow no dialogue to question the articles of faith put forward as dogma. The "official science" of a Ducrocq is the bailiwick of scientific underlings who cannot allow themselves the casual elegance of an Emile Guyenot.

Is it possible, without falling into an anthropomorphism that attributes naive purpose to nature, to maintain that evolution drew the crystalline lens of the eye from the mineral world, doubled it into two eyes, then made that double organ transmissible by heredity?

Albert Ducrocq places us before a dilemma: you, I, and the neighbor's dog all have two eyes; as long as you have nothing better to propose, you have only a choice between "God" and "natural cybernetics." The sleight-of-hand that masks the "authoritarian course" slips by under cover of the illusion that in opting for "natural cybernetics" we are opting for a scientific explanation and against an article of faith. Actually, however, Ducrocq gives us only a choice between two articles of faith.

I have nothing better to propose. But I refuse to let an article of faith masquerade as a scientific explanation simply because it reflects the spirit of the nineteenth century and is presented by a man who writes like a pundit bristling with certainties. Albert Ducrocq's "natural cybernetics" may be true, but it is still an article of faith.

In the face of a dilemma involving two articles of faith, the only scientifically tenable attitude consists in saying, "I don't know." I will often have occasion to acknowledge my ignorance in this book. At no time will I allow myself to disguise a choice between two articles of faith as a choice between a "rational" and an "obscurantist" explanation.

Do philosophical discussions take place in anthills? We have no solid basis for answering either yes or no. But we can state categorically that no scientific seminars take place in any anthill, beehive or other insect city, because as soon as a community achieves a minimum of scientific knowledge and spirit, it

becomes obvious. Ants and bees have stereotyped behavior; no observer has ever noted either improvement or regression in their communities. This fixity seems to be the rule in the animal world. The human race is the exception.

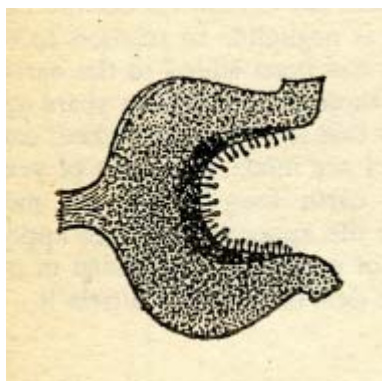


The idea of the appearance of the eye by natural evolution as described by Albert Ducrocq is as naive as that of the appearance of the first woman as imagined by simple souls in the past. The only certainty, for our twentieth century, is that neither the eye nor the first woman appeared in that way.

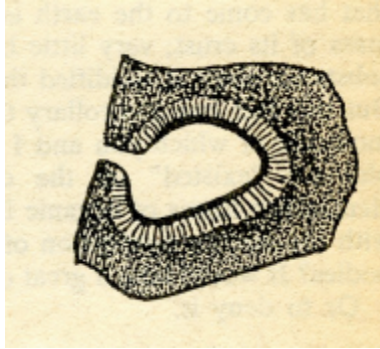
(The illustrations of the "four stages" in the evolution of the eye, and the explanatory comments that accompany them, are taken from *Le Roman de la Vie*, by Albert Oucrocq.)—Author's note.

EVOLUTION OF THE EYE

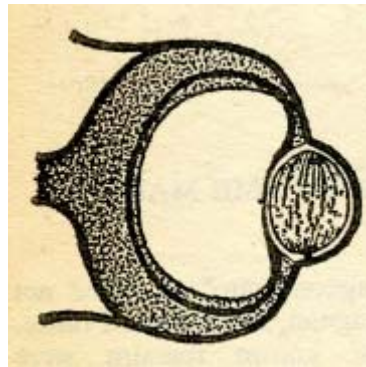
Four distinctive stages in the development of the organs of sight:



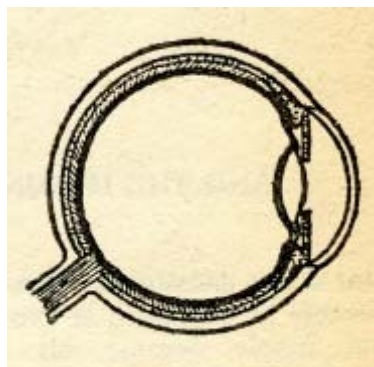
Hollowing of a surface rich in pigments.



Evolution of the cavity toward the configuration of a camera obscura.



Appearance, in front of the orifice, of a transparent substance which tends to take on the shape of a lens.



Focusing lens and controlled opening of the human eye.

Did the human race achieve that distinction on its own? Or, its natural ingularity having been noted, did it benefit from the outside help that all the First Civilizations claim to have received?

I will conclude this chapter devoted to our remote origins with a well-known

fact: the amount of cosmic dust that has come to the earth is negligible in relation to the mass of its crust; very little has been added to the earth's substance since it solidified three or four billion years ago. But this fact has a corollary that is often overlooked: each molecule of which you and I are made is billions of years old; we "existed" on the earth long before the most elementary forms of organic life appeared. Did life appear with the minute proportion of cosmic dust included in our bodies? It would take a great deal of daring to affirm it. Or to deny it.

3

AND THE HOMINID BECAME MAN

Our direct ancestor is "Cro-Magnon man," so called not because he originated at Cro-Magnon, in southern France, but simply because his first known remains were discovered there.

The terminology of anthropologists, based almost entirely on geographical names, strikes the layman as having been conceived for the sole purpose of being incomprehensible. If I used the language of anthropology, I would speak of the "Convention period" in referring to the time when I was twenty-two and lived near the Convention subway station in Paris, and I would call the knowledge I gained in those days the "Conventional acquisitions." At that time I had an affair with an English girl who lived near the Segur station. If she had been an anthropologist, she would have called it the "Segurian period" of her life, and only our close friends would have been able to establish a connection between my Conventional recollections and her Segurian memories.

And this is not a joke. In *La Genese de l'Homme*, a book that is supposedly a work of popularization, Camille Arambourg writes that Dr. Leakey found Quaternarian formations from the Villafranchian in East Africa. The "Villafranchian" takes its name from the town of Villefranche, France. Dr.

Leakey's native language is English, and most English-language books loftily ignore the "Villafranchian." The terms in which Dr. Leakey's discovery is discussed in the English books I have consulted are so different from Camille Arambourg's that I have been unable to determine exactly what, in Dr. Leakey's mind, corresponds to the period that Arambourg calls the "Villafranchian."

What I am saying here is well known to all prehistorians. But if, for professional or social reasons, I needed to be on good terms with prehistorians, I would not say it any more than they do; I would be obliged to conceal those unfortunate weaknesses.

When anthropologists speak of an "Aurignacian-Perigordian phase" at the beginning of the Upper Paleolithic, does it mean that between 35,000 and 18,000 B.C. Aurignac and Perigord were the center of a radiating civilization, or does it mean simply that the first known (and still the most eloquent) vestiges of the period were found in southwestern France? There are excellent anthropologists who do see Perigord as the focal point of the precivilization that spread as far as

South America by way of Siberia and Alaska (across the Bering Strait, which was then frozen solid). And there are equally excellent anthropologists who groan when they hear that theory.

They regard it as a result of the confusion engendered by the very special terminology of anthropology, and refuse to grant the France of twenty thousand years ago the role of civilizer of the planet.

Since there is a growing tendency for anthropology to include archaeology and paleontology, it is easy to understand why I venture into it with caution. My caution will require me to avoid using words not found in ordinary dictionaries.

Twenty-five thousand years ago the earth was populated by about a million people who were fully human. The manufacture of flint tools and weapons was already a veritable industry, accompanied by barter commerce on a continental scale. Flint tools are found very far from regions where the raw material exists, and for each period there is a corresponding way of shaping flint. A specialist can date a flint scraper found in a flintless region between France and Russia, but he cannot say whether it was imported from Russia or from France, just as an adolescent can tell approximately when an old car was made, without necessarily knowing what country it came from.

But in their ways of thinking, the people of twenty-five thousand years ago were as different from us as the Amazonian tribesmen of today. Ideas that seem obvious to us, and that we would expect to appear long before industry and international commerce, had not yet arisen in any human brain. The spear thrower, a stick with a hook or socket for holding the end of a spear, so that the action of the arm is lengthened, is one of the simplest "mechanisms" imaginable, yet there is no evidence of its having been known until about 15,000 B.C. The bow did not appear until about 10,000 B.C. It thus took five thousand years to advance from the spear thrower to the bow. Fifty centuries. Even so, we can say that the people of twenty-five thousand years ago were fully human, because as far back as we can go, the notion of progress is constant. It may have taken two hundred thousand years to go from two inches of useful cutting edge per pound of flint to eight 30 inches per pound, but that progress did occur, whereas no study of ants, however far into the past it may go, has ever uncovered either progress or regression. Ants organize themselves according to a stereotype, from generation to generation.

An ant lives for a year, so the number of generations observed is large enough to justify the assumption that ant civilization is absolutely static. And it is a civilization in the sense we usually give to the word: each anthill is a structure of masonry reinforced by timbering, with rooms for special purposes (storerooms, nurseries where worker ants watch over eggs laid by the queen, etc.). Some anthills have "stables" where aphids, whose sweet digestive juices are extracted by the ants, are kept and fed on roots. Some have "cellars" where mushrooms are cultivated in leaf mold. All anthills have several exits, made in anticipation of an attack by enemy ants. A war between two neighbouring anthills ends with the disruption of the conquered anthill, while the victor takes away the larvae of the vanquished.

Where did ants get the set of "reflexes" and "instincts" without which their bourgeois, military and conservative civilization would be inconceivable? It is tempting to imagine entomologists taking samples of ants, experimenting with them as Pavlov did with his dogs, conditioning them to be bourgeois builders, and turning them loose to see how long it would take them to colonize, then civilize populations of wild ants—or be exterminated by them in a given area.

This idea of a civilization brought from outside is all the more attractive because it would explain not only the high level of ant civilization, but also its changelessness. How could insects so incapable of modifying the status quo have achieved such an advanced civilization by their own means?

But who could have thus conditioned ants (and, incidentally, bees, termites and other insects whose inexplicable social organization sets them off so sharply from other insects that live in anarchy)? In any case it was not our ancestors of twenty-five thousand years ago: to condition ants as I am suggesting, it would take biologists with knowledge surpassing that of even our most brilliant contemporaries. But—in theory—giving ants a set of conditioned reflexes is perfectly conceivable.

The origin of ant civilization is one of those absolute enigmas that biologists do not even know how to approach.

Human societies, however, have obviously been capable of developing their increasingly elaborate civilizations, up to and including our own, without any outside help. After four hundred thousand years of seemingly hopeless slowness, the pace of progress accelerated; then, toward 22,000 B.C., the first calcite and steatite statuettes appeared.

However slow it may be, continuous progress is enough to demonstrate the existence of a creative spirit enabling those who had it to start from almost nothing and achieve a little more, then more and more. As hominids began showing a tendency to progress, they became men.

Human societies have always had the ability to develop civilizations unaided, but as soon as we enter historical \ times, that is, as soon as we find civilizations advanced | enough to possess written documents relating their history, we see that all of those First Civilizations attributed their knowledge and progress to gods who came from the sky in] celestial vessels and found men who were already human living among animals that did not know they already had I potential masters.

Before examining the Myth which, according to the First Civilizations, was already ancient three or four thousand years ago, we must first specify what those First Civilizations were. We must also specify the Myth they had in common. Only

then can we consider reasons for accepting or rejecting the possibility that the Myth may contain a historical truth.

Everyone knows "vaguely" that the first known civilizations were in Egypt, Mesopotamia and China. Tibet may be added as an afterthought. Besides the Egyptians and the Chinese, the peoples involved were the Assyrians and the Persians. And the Tibetans, of course. As another afterthought, one may add the Phoenicians, great travelers whose birthplace is not clearly known. The Hebrews and the Greeks are usually overlooked. They are too close to us to be bathed in the somewhat toxic mystery with which the imagination surrounds any evocation of Babylon, the Pyramids, Zoroaster or the Grand Lama.

Which of those civilizations is the oldest? We do not know. The relative ages assigned to them depend on the documents that have come down to us from each of them, so our answers prove nothing; they merely fix the limits of our knowledge.

All through the early nineteenth century, Egypt was granted priority. Then new discoveries gave reason to believe that the great adventure of human civilization had begun in Sumer. The Great Pyramid was built between 2800 and 2700 B.C. Aside from anything else, the accuracy of its orientation would be enough to prove that it could have been built only by a civilization sufficiently old and advanced to have accumulated a remarkable store of astronomical knowledge. When Tycho Brahe, the astronomer to whom Kepler owed his astronomical training, tried to determine true north for his observatories, his accuracy was inferior to that of Pharaoh's architects.

Pharaonic civilization is thought to go back to the fifth millennium B.C. The oldest known calendar is that of the Pharaohs and it begins at 4236 B.C. At present, the civilizations of Sumer and Mesopotamia are also believed to have begun in the fifth millennium.

The antiquity attributed to Chinese civilization scarcely goes beyond the second millennium, when a ruler of the Hsia dynasty is said to have ordered the burning of all old books, after having transcriptions made of everything that seemed of interest to him. The Hebrews "enter history" after the Chinese, even though their calendar goes back to 3761 B.C. Historians regard as uncertain anything in Hebrew history prior to the birth of Abraham in about 2000 B.C. Since Schliemann's discoveries, Greece has a more or less reliable chronology beginning in the second millennium, with some data leading back into the third millennium.

But there is a great difference between all this and the antiquity claimed by the First Civilizations themselves. Manetho, an Egyptian priest who wrote a history of Egypt in the third century B.C., says that the Pharaohs were the direct heirs of gods who came to earth in remote millennia. Plato, in the *Critias*, tells of a civilization that was brought to men by the gods and was then destroyed in a war that he dates at about 9000 B.C.

How much of this is historical truth and how much is legend? Later sections of

this book will shed light on that 34 question, but for the moment we can define the First Civilizations as societies which appear at the dawn of historical times with knowledge justifying their being regarded as civilizations, and which attribute that knowledge to two-legged mammalian gods who came from the sky and then departed, leaving a heritage of revealed teachings.

It is this certainty of being the heirs of flesh-and-blood gods which constitutes the Myth common to all the First Civilizations.

Man has often been defined as a "religious animal." It is true that in all contemporary primitive societies anthropologists have noted a metaphysical spirit, that is, a belief that there is a Superior Order to which all matter in the universe is subjected, and that man can win its benevolence by means of certain practices reputedly agreeable to it.

In all known societies of the past, we find the same basic metaphysical belief, with only differences of form. As soon as a human society becomes cohesive it is sure to have the binding force of a metaphysics.

But the Myth of what we can only call "astronaut gods " gods who came from the sky and were made like you and me, is an exclusive feature of the First Civilization and societies related to them.

With the exception of the Mayas of South America (and in my book *Les Caluers de Cours de Moise* I have shown that they are probably only an apparent exception) in all primitive and non-primitive societies that have ever been studied we find a metaphysical spirit, rites, and a divine nature attributed to abstract "forces" and such phenomena as sunrise and sunset, or rain and thunder, but only in the First Civilizations and their heirs do we find a myth based on the notion of teachings revealed by "astronaut gods "

This sharp difference has never been pointed out before. The reason is simple: until a dozen years ago, belief in a thunder god and belief in civilizing astronauts appeared equally irrational. Even today, I constantly meet Se who are convinced that the astronaut gods of the First Civilizations belong in the same hodgepodge of superstition as the animistic divinities of contemporary primitive societies.

I have been led to think differently. I am not asking you to accept an article of faith, since I am not proposing one. What I am proposing is an account, reconstructed from the various versions of the common Myth that have come down to us, of events that may have happened on earth between the Upper Paleolithic and the dawn of historical times. It is not to make a display of learning that I have begun by showing the uncertainty of the data underlying conventional theories about that period. I have stressed it to remind those who may have forgotten it that all theories about the period have a "novelistic" basis.

But we must not go to the opposite extreme by thinking that since nothing has been established with certainty, anyone is free to imagine anything without risk of

being proven wrong. Some things have been established incontestably, but without absolute precision; there is still a margin of error, large in some cases, smaller in others.

The account I am proposing is "novelistic" to the extent that I systematically call on imagination to make connections among facts. But it is not "pure fiction," because I do not allow imagination to stray beyond the limits set by the margins of error of the reliable data. This book is thus a mixture of the certain and the possible, and I do not think it contains anything that contradicts what the best authorities regard as having been established with certainty.

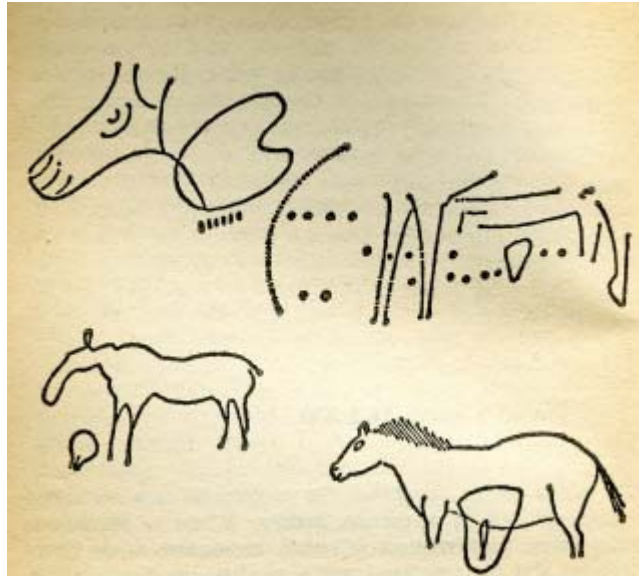
The Novel of the Bible obeys the rules of "fictionalized history": I am not entitled to imagine a meeting between Louis XVI and Napoleon, because it is established that they never met; but, knowing what was decided after a conversation between Napoleon and Talleyrand, I am entitled to imagine the arguments that led to the historically certain decision.

5

FROM ART TO MAGIC

To minds of the type that the nineteenth century called rational, art is a useless luxury, if not a pernicious temptation. Nevertheless it seems more and more likely that art and the creative spirit appeared simultaneously in our remote ancestors.

No relation of cause and effect, however, has ever been established between a taste for beauty and the ability to initiate and continue progress; it has simply been ascertained that the two go together. About thirty thousand years ago man developed a metaphysical conception of the universe and thus emerged from animality, and it was during this same period that he first drew directly identifiable forms. We have reproduced some of those drawings from Leroi-Gourhans's *Le Geste et la Parole*. He presents them as "stereotyped figures in which only a few conventional details enable one to identify an animal." The artistic sense in the drawings is obvious—to our century, at least; we discern a stark, admirable simplicity where the nineteenth century saw nothing but crude scrawls that held no attraction for a rational mind.



"It was not until about thirty thousand years ago that the first forms appeared, limited to stereotyped figures in which only a few conventional details enable one to identify an animal, These considerations point up the fact that figurative art is, in its origin, directly linked to language, and is much closer to writing, in the broadest sense of the term, than to the work of art."

Andre Leroi-Gourhan, *Le Geste et la Parole* Can we blame that anesthesia of the artistic sense for the fact that despite the capital importance of the scientific discoveries made in the nineteenth century, it was a stupid century in whose heritage we have found the source of most of our difficulties?

I am all the more inclined to think so because the nineteenth century was the logical culmination of puritanism, the somber mental aberration that engendered the strange American civilization, which produces both the most fabulous mechanisms and the way of life most fabulously traumatic to the human spirit. But let us not wander from the subject of this chapter, which is the conjunction of art and progress in the history of mankind

Our remote ancestors' need for art and beauty must have been fundamental to have made them take time, when they were only a weak species hunted by other species, to draw forms that we find beautiful, and fashion ornaments for themselves. Thirty-five thousand years ago, man had known how to make and preserve fire for tens of thousands of years, but it is from that time that we have the first evidence of a technological application of fire, and the object of that veritable industrial revolution was to make pigments by the calcination of ferruginous ochers.

Art reached its maximum figurative development during the Magdalenian (11,000 to 8,000 B.C.). At its outset toward 30000 B.C., it "did not begin with a 'servile,' photographic expression of reality; we can trace its organization through a period of some ten thousand years starting from signs that seem at first sight to have Gourhan .

Thus by 22,000 B.C. art was already organized. The people of that time lived in huts and tents! They wore clothes made of finely sewn skins. They adorned themselves with necklaces and other ornaments made of animal teeth, shells and carved bones. They knew how to make baskets and work with wood and bark. They had flint tools, shaped according to their uses, and bone instruments. They were skilled butchers and furriers. And they had religious convictions, as is shown by the fact that skeletons from that period have been found arranged in a way that could not have been fortuitous, or surrounded by objects indicating conclusively that death was an occasion for ritual.

Our certainty that the people of 22,000 B.C. had rituals reduces the role that we would otherwise be tempted to assign to "pure" art. Were their ornaments intended to be purely decorative, or were they utilitarian talismans? When pigments were made by calcination, was it a matter of art for art's sake, or were they used in magic for hunting? It is more and more widely accepted that hunting magic played a very important part in the lives of our distant ancestors, as it does today in contemporary primitive societies. And it still survives in European countries, where hunters have their hounds blessed on Saint Hubert's Day.

The assumption that the basic aspirations of the human race have always been the same may be a modern superstition and it may lead to false ideas, but all reasoning needs an initial postulate, and that is the one most easily accepted today.

Hunting magic has its source in a natural tendency to believe in a Superior Order. Insofar as a world governed by chance is terrifying, man forces himself to believe in a Superior Order and tries to discover the behaviour and rites that will make it well disposed toward him.

When two facts have appeared to be linked together once, it is logical to wonder whether they will be linked twice, three times, always ... On the day when I first wore a bear's-tooth necklace (to make myself attractive to the ladies), I killed a bear with a single well-aimed throw. Is wearing a bear's-tooth necklace a condition required by the Superior Order for weakening all the bears I confront? I must try it and see. Once I have become unconsciously convinced that wearing my magic necklace will make my throwing arm more effective, I will have more self-confidence the next time I meet a bear. And if I forget to wear my necklace, my arm will tremble.

When I become a father, my son will admire the sureness of my arm. When he becomes old enough to hunt bears, I will tell him my secret and make him a bear's-tooth necklace of his own. After my death, stories of my hunting prowess will be repeated, with the embellishments that are proper when one speaks of the dead. Within two or three generations, the effectiveness of wearing a bear's-tooth necklace when hunting bears will be an established fact solidly supported by experience.

The practice of hunting magic at the beginning of the Upper Paleolithic, about thirty-five thousand years ago is now almost uncontested by prehistorians. It is a long way from hunting magic to metaphysics, but Leroi-Gourhan considers that the existence of metaphysical beliefs as early as the Upper Paleolithic has also been proven.

Magic is, in a sense, accessible to animals. At the Pavlov Institute, a dog was habituated to being fed immediately after receiving a painful electric shock. He gradually stopped reacting to the shock as an unpleasant experience because he associated it with the food that always came after it. He was fully conditioned when a shock strong enough to make any other dog howl with pain made him salivate and wag his tail because he was certain that he was about to have something good to eat.

A masochistic dog of this kind has no counterpart in nature. He is a creation of man, in the Biblical sense of the word "creation." Before man intervened, there was no such animal as a dog that was glad to receive an electric shock. And when a dog salivates after a shock, he reacts as his creator wants him to.

Let us now examine the effects of such deliberately instilled masochism.

The conditioned dog willingly undergoes a painful rite; he has established a cause-and-effect relation between a painful sensation and the pleasure of eating. As we have seen, the ability to establish a cause-and-effect relation between two seemingly unrelated phenomena is the first step toward hunting magic—and human reasoning.

But this does not mean that the dog conditioned at the Pavlov Institute is in the process of becoming human. First, he did not become masochistic of his own accord; and second, there is still a great difference between hunting magic and metaphysics.

Hunting magic is to metaphysics as turning a lamp on and off is to the theory of electricity. Magic seeks practical results, without concern for theory. It matters little to me why wearing a bear's-tooth necklace steadies my arm when I hunt bears; as long as my arm is steady, I am satisfied. It matters little to me why the lamp goes off when I press the button; as long as it goes on when I press the button again, I am satisfied. And as long as I am given a meal each time I receive an electric shock, an electric shock will make me salivate. If the shock were replaced by a flashing light, it would make no difference: there is magic whenever any kind of rite is accepted. I have a dangerous bear before me; I touch my magic necklace, I throw a stone or a spear, and a moment later I have before me a bear that no longer moves, a bear that I can cut up and eat. The magic order has been respected. I can now eat and sleep without having to ask any questions.

6

FROM MAGIC TO METAPHYSICS TO ASTRONAUTS

Hunting magic was a great step forward: man could now make invisible forces guide his arm against his enemies. The spirit of that magic still persists. Motorists of undetermined mental age wear medals bearing a supposed likeness of Saint Christopher to make him protect them. German soldiers in World War II wore belt buckles adorned with a swastika and the inscription "Gott mit uns" ("God with us.") Borman prayed for God's help while he was circling the moon.

Yet magic is a dead end. The next step, metaphysics, begins when I wonder what my accurate throw has taken away from the bear, when I try to imagine the

nature of that "life" whose presence made him formidable and whose absence makes him edible.

Once I have posed that question with regard to the bear, I am on the way to posing it with regard to my parents, dying of old age, my brother who was killed by a bear, my son who died while he was still a baby. What is "life?" Where does that "invisible" go when a body suddenly becomes inert? It will do no good to tell me that it goes to Nowhere; it will take thousands of years of mental progress before I can understand such abstractions. I have not seen the soul leave the body, but its invisibility does not disprove its existence. It necessarily continues its life elsewhere. Since it existed in the body, it now continues to exist outside the body.

What can I do to help that "soul" in that "elsewhere" of which I know nothing? The next step will be taken when I pose the question with regard to myself. When I realize that my body can also lose that invisible something whose absence makes all bodies insensitive to pain, I have become aware that I am mortal. And I have become a metaphysician, because from now on nothing will be able to deliver me from this agonizing question: What is it that will leave my body when die, and where will that unknown, invisible entity go?

Metaphysics is a search for a talisman that will make my soul secure after my death, as my magic necklace steadies my arm during my lifetime.

Metaphysical anxiety is very unpleasant for the individual who feels it, but experience shows that it is beneficial to the species. The individual who has become a metaphysician hastens to integrate himself into a group, to discover and practice rites that will assure him of having many children, thus establishing a continuity of descendants who will give their parents the funeral rites reputed to be most useful for a soul separated from its body. If I am not surrounded by a community of people who love me and are able to bury me with the tools and talismans that ensure a good reception in the Beyond, who

will put those objects in my grave?

Incidentally, and contrary to a widely held opinion, it is not burial that marks attainment of the metaphysical stage, but the existence of a ritual that follows death, the invocation of invisible forces after it has been ascertained that something invisible has left the material body with no hope of return. A cannibalistic society is more spiritually advanced than a society that buries its dead, if the buriers are concerned only to get rid of a corpse, and if the cannibals' meal is accompanied by a ceremony intended to perpetuate the dead man's soul in the bodies of those who have eaten him.

The notion of "metaphysical" or "spiritualistic" cannibalism is not necessarily absurd. Recent experiments with rats have overturned a number of ideas inherited from the nineteenth century, which considered that cannibalism was inherently barbaric. The implications of the experiments are rather disturbing.

A group of rats is given a "maze test" that enables the experimenter to select the most intelligent member of the group. After a certain number of trips through the maze, one rat memorizes the route better than any of the others and is consistently the

first to reach the piece of cheese at the end. This mental champion is then killed, and his brain is fed to half the members of a group of rats that have never seen the maze in which he demonstrated his intelligence. The other members serve as a control group. All these rats are then put through the maze. Each time the experiment is performed, those that have eaten some of the champion's brain memorize the turns more easily than those that have not. Perpetuating the virtues of the dead is the professed aim of all societies that practice spiritualistic cannibalism.

Aircraft mechanics use the word "cannibalism" to describe the expedient of replacing damaged parts in one plane with undamaged parts taken from another; in this way it may be possible to turn three wrecks into two planes in flying condition. The growing practice of transplanting organs taken from dead bodies is "cannibalism" in the aeronautical sense, and to some extent even in the ordinary sense. Perhaps a society more advanced than ours, free of our prejudices, would have fed Einstein's brain to a dozen of his disciples, chosen from among those best able to find their way through the maze of the theory of relativity. . . .

But let us return to the appearance of art.

The present tendency is to consider that writing was developed before historical times. The oldest known works of art appeared about thirty thousand years ago.

"We are surprised to see that their content implies a convention inseparable from concepts already highly organized by language," writes Leroi-Gourhan, and he explains why they are more a form of writing than of pure art: 'Although the content is already very complex, the execution is still faltering: the best representations show without order, the superposition of animal heads and sexual symbols that are already extremely stylized.'

In the period around 20,000 B.C., the execution appeared to have made great progress, then between 11,000 and 8,000 B.C., during the Magdalenian, the period of the Altamira and Niaux caves, an art appeared which "gradually led the figures to a formal academicism, and then, shortly before the end, to a mannered realism with photographic precision of movement and form."

Was there a more or less continuous evolution from the stylized symbolism of thirty thousand years ago to the "photographic academicism" of the Altamira cave paintings? That is the conventional view.

Was there, between 30,000 and 20,000 B.C., an upheaval that caused a break of continuity in art? That is the hypothesis I am proposing.

We have a relatively recent example of a change in the significance of an art. In the Middle Ages, each figure and each of its details had a precise meaning that could be read" by the faithful, even those who were unable to read a book. A medieval statue of a man with his left knee uncovered, to take an elementary example, represents an Initiate of the Tradition." When the Renaissance brought a return of the pagan art of the Greeks, this symbolism disappeared and the faithful forgot a language that artists no longer used.

The upheaval that I am attributing to the cataclysm of 21,500 B.C. was obviously a more violent change than the Renaissance, and the break of continuity that it caused was more drastic.

Did the Wiirm III glaciation actually cause a worldwide cataclysm? Geologists are not in agreement on the matter. Some reject, others accept the idea that because evaporated water could not return to the oceans by way of the frozen rivers, the level of the oceans may have been lowered to the point where the weight of the water was no longer sufficient to counterbalance the internal pressure of the globe. If the ocean floors were ruptured in this way, placing molten lava in contact with the water, the oceans became a boiling cauldron spewing out thick clouds of vapor that quickly surrounded the whole planet and, as they rose, drew up clouds of the dust that had been raised from dry land by the repercussions of the underwater earthquakes. The amount of molten lava compressed under the solidified crust of the ocean floors is far greater than the amount necessary for raising the temperature of all the world's oceans to the boiling point.

If this cataclysm took place, the clouds surrounding the earth were opaque enough to prevent sunlight from coming through. The surface of the earth was hot and began cooling only gradually. Animal and plant life were almost entirely wiped out.

The species best fitted to survive was, of course, the human species, which by 21,500 B.C. was sufficiently evolved to see disaster coming and prepare for it by taking shelter in caves.

We cannot state positively that the cataclysm occurred, but its geological probability is supported by logic. The Myth of the First Civilization tells of a cataclysm that would have had the consequences described above. It also tells of astronauts made like you and me who arrived in the midst of the cataclysm, dissipated the clouds, brought back the light of the sun, and then revived life on earth.

If what the Myth says is true, how can conventional theory maintain that human development was continuous from thirty thousand years ago to the beginning of historical times? Quite simply. It is like studying a bridge: it seems continuous if you look at its roadway and discontinuous if you look at its supports. It can easily be maintained that the evolution of art was continuous from ancient Greece to the present, provided that Christianity and humanism are regarded only as artistic modes.

If what the Myth says is true, it is possible that on Venus there are remains of an evolution that began at the same time as evolution on earth and was halted in about 21,500 B.C. by the same phenomena that produced the Wiirm III glaciation, since they probably affected the entire solar system.

But if what the Myth says is true, we can expect to have unquestionable confirmation of it in the near future because logic supports those parts of the Myth which seem to indicate that the astronauts who came to earth first built an installation on the moon. If they did, it is still there.

CIVILIZATION AND MAMMALIAN GODS

The origin of civilization is viewed differently by two different modes of thought: the humanistic and the medieval. Humanists maintain that man developed civilization on his own, that he owes nothing to anyone else. Medievalists (in the special sense given to the term 47 here) believe that civilization arose as the result of a helping hand given to one group of men by astronauts who came from beyond our planet.

Humanists are called humanists because in their opinion the human race has developed entirely by its own means, and "man is the measure of all things." Humanist doctrines were professed in ancient Greece, went into a serious decline at the beginning of the Christian era, were triumphantly taken up again by the Renaissance in the fifteenth century, and reached their apogee in the nineteenth century. Today it is still possible for anyone to say (and believe) that he is a humanist without incurring major ridicule.

Medievalists are called medievalists because their view, inherited from the Tradition of Moses, reached its apogee in the Middle Ages. From the fifteenth to the nineteenth centuries, humanists, proud of their fragmentary sciences, jeered at medieval beliefs. Medievalists have always believed in the possibility of transmuting metals, making flying machines, and even going to the moon. They were positively ridiculous in the nineteenth century, when the absurdity of their wild notions was clearly demonstrated.

Today, of course, being a medievalist, I feel more at ease than a humanist . . .

It seems to me that I have now given enough background in preceding chapters to be able to present an outline of my medieval thesis without the risk of having it rejected at first sight. In later chapters I will, of course, try to justify what is necessarily stated summarily and categorically in my outline.

Here is the outline:

In about 22,000 B.C., climates began changing as the great glaciation approached. Winters became longer and harsher, summers shorter and cooler. The glaciers increased their area and thickness as they amassed rain water, which no longer fed the streams. As the rivers began drying up, the level of the oceans dropped. Did this process take dozens of years, or hundreds? Carbon-14 dating has a margin of error of several centuries for events that took place more than twenty thousand years ago. It is impossible to determine the duration of the changes leading up to the cataclysm. It cannot even be stated with certainty that such a cataclysm actually occurred.

All that can be said with certainty is, first, that stories regarded as historical narratives by the First Civilizations tell of two cataclysms: one before the arrival of the "gods" and one after their departure; and second, that the occurrence of a cataclysm caused by the rupture of the ocean floors during the Wiirm HI period of the last glaciation, between 22,000 and 21,000 B.C., is considered probable by many geologists.

What we have seen of the people who lived during the period around 22,000 B.C.

justifies us in assuming that they were intellectually and materially equipped to realize that something abnormal was happening and protect themselves against the cold by preparing homes in caves to replace the huts and tents in which they had lived before.

Then suddenly, at some point on the ocean floor, the balance between the internal pressure of the globe and the weight of the water was broken. The Cataclysm was under way.

Underwater earthquakes are a common occurrence. They are the cause of tidal waves. Normally, enormous masses of water rush to the place where the ocean floor has been ruptured and the breach is quickly closed. In 21,500 B.C., however, the level of the oceans was very low, so low that the first tidal wave was followed by several others and, instead of being closed, the breaches were widened. Prolonged contact with molten lava made the water of the oceans boil. The repercussions of the underwater earthquakes set off earthquakes on dry land. Violent winds mixed the dust raised by dry-land earthquakes with the clouds of vapor from the boiling oceans. The thick clouds that rose were opaque, laden with dust. The distinction between day and night vanished.

It is possible that the Wurm IH glaciation did not cause a Cataclysm like the one I am suggesting. But if that Cataclysm did not take place, we must acknowledge that the Myth of the First Civilizations invented out of whole cloth:

A natural cataclysm compatible with current geological knowledge.

The story of a landing by astronauts that is compatible with modern space technology.

A description of how those astronauts made the planet inhabitable again, in ways that are compatible with the concepts of modern science.

And the First Civilizations themselves are all the more surprising, having been developed by primitive people living in the Mediterranean basin, because no other group of primitives has ever attained a comparable level of civilization by its own means.

To sum up, if the Cataclysm did not take place, the Myth was the work of extremely modest people who, embarrassed at having created a civilization above their condition, invented gods in order to have someone to whom they could attribute their inventions.

"The nineteenth century, still followed by too many popularizers, created an image of prehistoric man by simple transposition: suit=bearskin loincloth; steel axe sharpened flint tied to a stick; house cave; and so on. II-50 lustration in all its forms, from frescoes in amphitheatres to motion pictures and cartoons, has made that image familiar to us. It is not even based on present-day primitives, but on a simple impoverishment of modern civilized man. [...] The technical image of prehistoric man

remains extremely poor."

By now the reader may have recognized the sardonic style of Andre Leroi-Gourhan. Let us accept his chastening lesson and modestly take stock of what we know, what we are entitled to think, and what we flatly do not know about the people of twenty-three or twenty-four thousand years.

We know that their cranial capacity was the same as ours, that they had a veritable flint industry, that they were skilled craftsmen, that they practiced hunting magic, and that they had a metaphysical conception of the world, as is shown by the funeral rites whose traces have been found .

We also know that their total number was about one million.

We are entitled to think that people so close to us did not let themselves be taken by surprise like animals when the Cataclysm began. We are entitled to think that during the decades of glaciation they discovered what Eskimos know: the possibility of preserving meat by cold. Seeing their game migrating toward warmer regions, those who did not follow the migration must have amassed stocks of frozen meat. We are also entitled to think that they must have made their caves into better shelters than the dens of animals.

We have no reason to believe that they were more rational and scientific than most of our contemporaries; we are therefore entitled to think that they were inclined to attribute the deterioration of the climate to the gods they worshiped, gods that were probably comparable to those of modern primitives. We are entitled to think that they wondered how they had offended the gods to make them mete out such punishment.

We are almost totally ignorant of everything else We do not know if human societies before the Cataclysm were organized into families or lived in bands. If there were families, we do not know if they were patriarchal and, if so, whether they were monogamous or polygamous. They may have been matriarchal and monandrous, or women may have had harems to satisfy their taste for polyandry. What was the status of children? What was the fate of old, sick, or crippled people?

The more we think about it, the more we realize that we know as little about our ancestors at the time of the Cataclysm as Columbus knew about the "Indians" he thought he had found at the end of his westward voyage.

But fortunately we no longer need to try to imagine ourselves in the place of our remote ancestors taking refuge in caves while the sky was darkened by thick clouds, living on meat frozen in the vast glaciers, and struggling to survive in the moist air in which the photosynthetic action of plants was stopped by lack of sunlight, though there was still enough oxygen for several centuries. It is much easier for us to imagine ourselves in the place of the astronauts described by the Myth of the First Civilizations as coming from another planet to explore this one.

The gods are our cousins.

We can all the more easily put ourselves in the place of the astronauts regarded as gods by our ancestors because they must have known no more than we do about the

people living on our earth when the Cataclysm had enveloped it in a thick mantle of opaque clouds.

Our cousins did not become gods until they had been accepted as such. One does not become a god as one becomes a priest, by following certain teachings; one becomes a god only by finding worshipers. When they arrived on our planet, the astronauts were only Columbuses of space, and they must have been more than a little worried about what might lie in store for them.

Let us try to put ourselves in their place . . .

9

WHAT VOLTAIRE KNEW

"In the beginning God created heaven and earth.' That is how, it has been translated, but the translation is inaccurate. There is no man with a little education who does not know that the text reads, 'In the beginning the gods made heaven and earth.'"

No man with a little education who does not know that? Was Voltaire mistaken, or have things changed since his day? I have met people who consider themselves well educated, are regarded as such by others because they have diplomas, and have never opened a Bible—which does not prevent them from saying and even believing that they are Voltairians, just as there were young "existentialists" who had never opened a book by Sartre but knew all the bartenders in Saint-Germain-des-Pres in the years immediately following World War II.

It is possible, of course, to pass oneself off as a Voltairian by displaying satirical wit, or as a humanist by proclaiming a few conventional ideas about the "obscurantism of the Middle Ages." But it is preferable to look through a few of Voltaire's books, and to have a Bible in order to know what he was referring to.

One of the things he referred to was the Biblical statement that at first "the earth was without form, and void"

The gods of the Biblical text began by bringing back light; once they had done that, they set about reestablishing order in place of formlessness, or chaos. First they restored plant life, then animals that fed on plants, then carnivores that fed on plant-eaters.

The order in which they did their work is logical if one accepts the initial postulate of a Cataclysm caused by the glaciation of the time. The Cataclysm is plausible; the glaciation is certain. And if the Cataclysm did take place, its consequences could not have been different from those described in the Bible.

The restoration of order was carried out in what appears to have been six phases (called "days" in Genesis) of a comprehensive plan. The first phase was devoted entirely to bringing sunlight back to the surface of the earth. In the second, evaporated water in the clouds was precipitated onto the earth to reconstitute the streams and oceans.

The program of the third phase was apparently quite extensive. It began with the channeling of the water that had fallen from the sky, so that it gradually became streams and rivers again, and then, in the marshes that had thus been drained, plants and fruit trees were reactivated.

At this point, Genesis uses the literary device of the flashback: in the second chapter, verses 5-7, we read that the gods "formed a man from the dust of the ground"* before plants were "growing wild upon the earth." Man, the only animal to have survived the Cataclysm by his own means, came out of his caves as soon as the Celestials had drained the marshes, // we believe the Biblical text.

I stress the words "if we believe the Biblical text" because they are the keystone of the whole line of reasoning that I am proposing. The reasoning is simple, it is taken step by step.

If the Cataclysm took place, it was somewhere in the vicinity of 21,500 B.C., and it resulted in the chaos described in the Bible. Did the Bible invent a wholly

* All Biblical quotations in this book are from The New English Bible, Oxford University Press, 1970. (Translator's note.)

imaginary cataclysm and its consequences in such a way that they accord with the data of modern geology? It is highly improbable.

The Biblical text is therefore at least a reflection of real events, which means that the reality of the Cataclysm is highly probable. But it also means that for twenty thousand years an oral tradition preserved an account accurately enough to be recognizable by modern geology.

Did such an otherwise realistic oral tradition graft totally imaginary gods onto its historical narrative? It is conceivable. But those gods are not only compatible with the real facts transmitted without serious adulteration, they are also described as bringing back the normal conditions of life, following a six-phase plan identical to the plan that our own technicians would have devised in the same situation.

Could such gods have been a figment of the imagination of prehistoric men?

It is possible. Anything is possible. The famous mathematician Emile Borel once calculated the number of monkeys that would have to be kept in front of typewriters for a given time in order to make it statistically certain that one of them would, by pure chance, type a recognizable version of the Aeneid..

It is therefore possible that the gods described in Genesis are a pure invention. But if that is the case, we must all kneel together before a miracle, because it means that our ancestors invented not only gods, but also the basic concepts of modern space travel, physics, technology, geology, biology and archaeology, and that they did it several thousand years before anyone had discovered that tin and copper could be mixed together to obtain bronze.

You don't believe in miracles? Good, neither do I, so we can remain comfortably seated and try to find a rational explanation for the many obvious concordances between our modern scientific knowledge and the behavior of gods who so strongly resemble astronauts that we find it quite natural to be made in their image.

10

AN INCURSION INTO THE "NOVEL"

Long before the enormous hollow sphere reached the orbit of Pluto, the sun's gravitational pull on it became appreciable.

It was a hollow sphere with a diameter of a little less than two miles, revolving at a speed sufficient to give a feeling of weight on its inside surface, so that its thirty occupants were able to live as though they were in a village. Deducting the area of the "polar circles" (where centrifugal force approached zero), since it was occupied by the propulsive mechanisms, maintenance facilities, controls, and observation posts, the inhabitable surface inside the sphere had an area of about ten square miles. The thirty astronauts were not cramped for space.

Everything during the long journey, marked by births and deaths, had happened according to plan. Fifteen couples had left without hope of return, and there were still fifteen couples as the spacecraft approached the planetary system that was its destination.

It had left from a planet revolving around a star several hundred light-years away. Its occupants, and their descendants, were to become the gods whose memory is preserved in the Myth of the First Civilizations, but they resembled us so closely that it is simpler to regard them as men and women of today.

This happened about twenty-three thousand five hundred years ago.

It goes without saying that we have just made an incursion into the "novel." But let us not be misled by words: my account is "novelistic" not because I have invented some impossible wonder, some point of departure for a fairy tale. No, it is "novelistic" because I have had to make a rather arbitrary choice among different procedures that could have brought travelers from one inhabited world to another.

From among the procedures whose principles are acceptable to our science, I have chosen the one that seems to me most compatible with the description of the gods' arrival given in the Myth. My arbitrariness goes no further than that.

Our best source of information about the Celestials of the Myth is what the Bible tells us about them: they were two-legged mammals, as wingless as you and I, so they could only have come in some sort of flying machine.

The Celestials found the earth in chaos; they succeeded in making it inhabitable again for its native species, but they sometimes made mistakes, became angry, made threats, failed to keep their promises, and even lied shamelessly to our ancestors.

Our best source of information about the possibility of such astronauts having come from another planetary system is *We Are Not Alone*, by Walter Sullivan (McGraw-Hill), winner of the 1965 International Non-Fiction Prize. It was published in 1964 and written before then, at a time when some scientists still doubted that man would be able to reach the moon. I stress this because it is hard not to forget how quickly scientific ideas become outdated in our time. *We Are Not Alone* is, in places, already an outdated book, but no other has yet been published in which the point is made so solidly. It is still a basic book that anyone should read before feeling qualified to express an opinion on the matter, just as no one should express opinions on prehistory without having read Andre Leroi-Gourhan's *Le Geste et la Parole*.

There is, however, a difference. Andre Leroi-Gourhan is both an eminent scientist and a remarkable popularizer; he is an exceptional case. Walter Sullivan is a highly qualified popularizer, and the bibliography at the end of *We Are Not Alone* confirms the seriousness of his research, but it also reminds us that there is no equivalent of Leroi-Gourhan in the field of cosmology.

Cosmology is now at the stage where archaeology was when Boucher de Perthes died, in 1868.

Boucher de Perthes firmly established the reality of remote prehistorical times, but he fell far short of convincing everyone. In 1868, serious people refused to place the teachings of the catechism in doubt on the flimsy pretext that Boucher de Perthes had found a few pieces of carved flint. "Carved by whom? Does he really expect us to believe that they were carved more than ten thousand years ago? Everyone knows that God hadn't yet created the world ten thousand years ago!"

I am not joking. In 1868, fourteen years before Darwin's death, serious people did not accept his theories any more than they did those of Boucher de Perthes. "Our ancestors lived naked in trees? What an idea!"

That was how things stood in 1868, little more than a hundred years ago.

Today, Walter Sullivan's book is a bit outdated in spots, but it is the work of a cautious scientific writer: it is his reservations and restrictions that are outdated, not his visions of the future. What has aged in his book since 1964 is his fear of letting imagination go too far.

When we read *We Are Not Alone* today, we see that in 1964 cosmology was at a stage of groping, like prehistory in 1868, when Boucher de Perthes timidly proposed an age of ten thousand years for flint tools that were later found to be nearly a million years old.

In cosmology, some reputable scientists still have strong reservations about accepting the idea of intelligent life beyond the earth, while others are already demonstrating the possibility of interstellar travel. In France, Professor Pierre Auger stated in an article published in 1965 that man would never be able to reach another planetary system. In Germany, Eugen Sanger, head of the Institute of Jet Propulsion Physics at Stuttgart, has calculated that an acceleration equal to that of the earth's gravity would enable a spacecraft to reach the edge of the visible universe in forty-two years—forty-two years as measured aboard the spacecraft, whose velocity

would dilate time.

This dilation of time is one of the hardest notions to handle in all of relativity theory. I will limit myself to its practical consequences: if Eugen Sanger is right, a spacecraft could leave the earth, go to another planetary system, turn around and bring back astronauts who would have aged less than twenty years, but would be dismayed to find when they returned that the earth had aged many centuries.

The idea that man may be able to leave the earth and live in a time span that covers several earthly centuries or millennia is not science fiction. It is pure science. It strikes a blow against the humanistic dessication of the spirit and illustrates the growing closeness between modern science and the medieval mind.

Medievalists have always believed in space travel, because they have never doubted the Tradition that claims to be the heritage of the Celestials and promises that men will first conquer the moon, then the universe of the gods, their cousins. Yes, the Middle Ages drew from the Bible the certainty that men would equal the gods—those gods to whom, as Voltaire points out, the Bible attributes the making of the earth.

The nineteenth century has made us forget all that. But to form an idea of the lucidity of the Middle Ages concerning man's possibilities, we have only to open the works of Meister Eckhart, where we can read, for example, "I refer you to the Scriptures, which say, T said: You are gods.' "

The sojourn of the "gods" on earth is described in the first eleven chapters of Genesis. We will soon examine the acts attributed to them, and see how those acts are compatible with modern scientific knowledge.

When we reach that point, we will have to avoid that pride which the Middle Ages regarded as the major sin against the spirit. We find it in all humanists, beginning with Voltaire.

Voltaire, as we have seen, knew that the word Elohim in the Bible designated "gods." But Voltaire was a humanist and could not rid himself of his humanistic pride: he felt justified in stating his conclusions as certainties, as if science had said its last word in 1765, when he published his article on Genesis. He naturally wrote his explanation of the gods in Genesis without any hypothesis of space travel. He was a witty man, and the conclusions he drew from his interpretation of Genesis are as witty as the quips of nineteenth-century satirists who did not believe that man would ever be able to fly.

We must be careful not to fall into the sin of pride. I say "we" deliberately, because you must be as careful in reading as I am in writing. We must never lose sight of the fact that science has not said its last word, and that we can propose only explanations that are compatible with science as it is today. But our science is not so bad . . .

Above the smug nineteenth century, our twentieth century is joining the Middle Ages, which were directly connected with the Biblical Tradition. This book is a reading of that Tradition in the light of today's scientific knowledge, and it will be

either confirmed or invalidated by the knowledge and discoveries of tomorrow.

A FEW DROPS OF PSYCHOANALYSIS

When it is not taken more seriously than it should be, psychoanalysis is helpful in understanding certain aspects of human behavior, such as the psychological block.

There are simple psychological blocks that can be diagnosed without resorting to psychoanalysis: if you explain to a banker that banks should be eliminated, his disagreement will be the result of a simple psychological block. An example of a more complex block is provided by those scientists who, all through the latter part of the nineteenth century, demonstrated that an airplane (known then as a "heavier-than-air craft") could never fly, because it was against the laws of physics.

Yet birds flew then as they do now, and they were all heavier than air.

It is here that psychoanalysis comes to our aid. Those scientists who refused to believe in aviation were the victims of a psychological block with a religious basis. Flying seemed to them the exclusive privilege of "angels." They were upset by the idea of human flight because they subconsciously regarded it as sacrilegious. Is that all in the past? No: there are religious sects in the United States that oppose the American space program on the grounds that going to the moon is a sin and that God will punish us for.

Do those American religious sects have a monopoly on that kind of psychological block? Certainly not. In France, the hypothesis I am proposing, the hypothesis that the Bible is an historical narrative, has encountered active opposition inspired by the same type of block. I have stated that my hypothesis will be proved or disproved in the near future, but that does nothing to reduce opposition to it, because a psychological block drives its victims to hide their heads in the sand.

There is nothing new about such opposition. "Galileo was prosecuted and delivered to the Inquisition by his enemies not so much because his discoveries contradicted certain passages of Holy Writ (which was the pretext of his condemnation) as because they placed in question the Aristotelian doctrines that were then accepted and taught. They thus came up against a genuine psychological block on the part of the official custodians of the science of his time."

The above quotation is from *Planetes et Satellites*, a collective work by a group of thoroughly official French scientists: Pierre Guerin, Research Director of the Centre National de la Recherche Scientifique; Evry Schatzman, Professor at the Faculte des Sciences de Paris; J. H. Focas and Paul Conteau, astronomers; Michel Combes and Marius Laffineur, astrophysicists; and J. F. Denise, Director of the Paris Observatory, who wrote the preface.

Why am I mentioning all this? To urge you to overcome any psychological blocks that you may have: do not reject my hypothesis on the grounds that it would "desanctify" the Bible for believers, or that it would require atheists to read the Bible seriously. Take it for what it is, for a hypothesis that starts from the idea that Genesis is a historically based narrative, and reaches the conclusion that the Elohim, as they are described in that narrative, are so close to our current concept of astronauts that no psychological block can justifiably lump them together with the angels of fairy tales.

According to my hypothesis, the Celestials left a "bow of the covenant" on the moon. If it is not found there in the near future, when exploration of the moon's surface has been completed, its absence will be proof that I have ventured into an interpretation of the Bible, and of the gods whose activities it describes, with knowledge inadequate for my ambitions.

But if my knowledge is adequate, the "bow of the covenant," and the original version of the story that was recorded in the Bible several thousand years later, will be found in a lunar crater. It will then be known how right or how wrong I was in saying that the gods of the Biblical text arrived in an enormous hollow sphere.

12

A CHAPTER DEVOTED ENTIRELY TO ABSTRACTIONS

Walter Sullivan's *We Are Not Alone* enables us to take stock of practical cosmology. A glance at theoretical cosmology will give us a better understanding of the reasons for its uncertainties, but it is a rather barren exercise. Since theory is (fortunately) somewhat beyond the scope of a novel, it seems only fair to group it all in one clearly labeled chapter and tell the reader that he can skip it if he wishes.

In a collective work titled *Science et Synthèse*, Andre Lichnerowicz, a mathematician and member of the *Académie des Sciences*, states that "To anyone who takes science seriously, scientific cosmology is not science. It is a poem of science, a game of science, an ambition of science; but it is not an integral part of science. [. . .] One has the impression that each scientist secretes his own little pocket cosmos, in competition with others, and that his has as much right to be taken seriously as any of the others.[...] Cosmology is a powerful intellectual stimulus for a whole area of science, but it remains foreign to the rigor and seriousness of the scientific adventure. We need such games to help us keep working on the austere and often humdrum tasks that make it possible, day after day, to integrate countless things into the true domain of science."

Lichnerowicz has set forth the harsh rules of the game. So much the worse for popularizing underlings if penalties are called without mercy. The whole beauty of the game is in its attempts.

As we have seen and will see again, the difficulty does not lie in finding a theoretical means of traveling from one planetary system to another, but in eliminating, from among the too numerous means that come to mind, those that are in any way incompatible with the Biblical text. Cosmology, Lichnerowicz tells us, is a

poem of science; the poet's problem is always to eliminate words that a lesser poet would be satisfied with, and to select only the one irreplaceably right word from the whole mass of possibilities.

Lichnerowicz also tells us that cosmology is a game of science, which means that all dogmatism must be excluded. He lifts us high above the dogmatic swamp in which Professor Pierre Auger demonstrated, in 1965, that man would never be able to reach the stars. Man was not able to do it in 1965 and he is not able to do it today. But never?

It goes without saying that man will never reach the stars unless he succeeds in going beyond his present scientific knowledge. Pierre Auger's breed is immortal. If a Pierre Auger had told Christopher Columbus that the Atlantic would never be crossed in six hours, he might have been right in one sense: it is quite possible that no ship will ever cross the Atlantic in six hours. And since only medievalists thought of flying machines in Columbus's time, the fifteenth-century Pierre Auger would have been respected for his solid scientific judgment.

Lichnerowicz tells us, finally, that cosmology is an ambition of science. It has become traditional to describe the earth as a speck of dust in the cosmos. I would suggest the image of a speck of dust on the rim of a turning wheel. The thinking creatures who live on it will need a great deal of ambition if they expect to determine, on the basis of whatever observations they can make from their position on the rim, the nature of the wheel that serves as the galaxy of their speck of dust, the type of vehicle to which the wheel is attached, the motive power of the vehicle, and, if there is a driver, the destination toward which he is heading.

Am I proposing too pessimistic an image of the difficulties that cosmologists must overcome? Here is how Lichnerowicz presents those difficulties: "We must find comprehensive solutions for our space-time, with an unknown topology; we must ask ourselves, 'What rational statements can we make about the topology of space-time?'"

The topology of space-time? Hmm . . .

In mathematics, topology is the branch of geometry that studies the qualitative properties and relative positions of geometrical configurations, independently of their shape and size. In other words, it is a kind of Sea of the Sciences on which it is easy to go adrift.

But just as it is not necessary to be able to lay an egg in order to appreciate an omelet, there is no need to be a swimming champion to appreciate the feats of bold longdistance swimmers. Let us therefore take a look—through binoculars—at the doings of topologists.

In *The Scientist Speculates* (Basic Books, 1962), an anthology edited by I. J. Good, David Bohm states in an article titled "A Proposed Topological Formulation of the Quantum Theory" that according to G. N. Lewis "the four-dimensional interval between two events connected by a light ray is zero." Thus if it were possible for an observer to travel parallel to a light ray, "in the proper frame of the co-moving observer, no time at all would pass between emission and absorption of a light

quantum."

I am not asking you to understand that any better than I think I do: if I could climb aboard a motionless photon, I would shout "Go!" to you, you would press a switch, the photon would shoot off toward a star a thousand light-years away, and I would reach that star before my wristwatch had time to make me one second older. The experiment could be improved by installing a mirror on the star that would send me, aboard my photon, back to earth. I would return without having aged at all, but I would find the earth two thousand years older than when I left.

I submitted the summary above to a group of mathematicians who are friends of mine. They all understood the basic idea perfectly, but divergences showed up almost as soon as they began discussing it among themselves. They expended a great deal of energy, on differing interpretations of the practical consequences that the theory would have for interstellar travel. Some maintained that such travel was a real possibility, others said that there was as yet no reason to think so.

There was agreement on one point, however: the problem posed is a problem of energy, of the amount of energy that, on the basis of Einstein's fundamental equation, we can reasonably hope to be able to extract from a given quantity of matter. There was also agreement that Pierre Auger had reasoned as a Voltairian humanist: he had tried to bind the future with the knowledge he possessed in 1965.

Things have happened since 1965. "Taming" the fusion of the hydrogen nucleus—controlling the energy that a hydrogen bomb gives off in a thousandth of a second—has not yet been accomplished, but no one doubts that it will be accomplished in the foreseeable future.

Even before the fusion of the proton that constitutes the nucleus of the hydrogen atom became a reality, theoreticians began the problem of the constituent parts of the proton. In theory, the proton is no longer the smallest of the "bricks" that make up matter: it is now thought to be an assemblage of three quarks.

The quark is a "theoretical particle." A theoretical explanation of certain experimental findings in nuclear physics requires the assumption that the proton is composed of three elements. Theoretical physics is something like a crossword puzzle: the theories must fit in with each other; when several "across" words have been filled in, one can begin determining the "down" words that must contain the same letters.

Those subnuclear particles have, of course, been given a name even before their existence has been experimentally verified. If it is proved experimentally that the proton is composed of three particles, those particles will be called quarks. It has become difficult to follow modern science without reasoning like Alice in Wonderland. "If quarks exist," a leading French scientist recently told me, "theory shows that they are inert, like helium. You can carry a little suitcase full of quarks, and to extract their energy, all you have to do is heat them. To three million degrees." If quarks exist, as the best theoreticians believe they do, the energy for interstellar travel will eventually be available.

But there is, of course, no proof that men will use the energy of quarks to send astronauts on one-way expeditions like the one I propose in my hypothesis. In such an expedition, a group of astronauts, men and women, would leave in a spacecraft the size of a town, with no intention of returning. The earth and its inhabitants would no longer interest them. They would go off toward a star known to have a planetary system containing at least one planet that would be suitable for human habitation.

A spacecraft the size of a town would be a sphere comparable in size to the moons of Mars. In Walter Sullivan's book, which is not science fiction, the possibility is studied by serious scientists. In a spacecraft made for such a one-way journey, centuries could go by without difficulty for the travelers. They would live as they did on earth, procreating and dying, producing the necessities of life in their sphere as we produce them on the terrestrial sphere.

A journey of that kind may be nothing but a wild dream. It may also be the means by which some thirty astronauts came to our solar system about twenty-three thousand years ago.

They did not come as explorers. They had left their home planet with no intention of returning. They came from a planetary system where science had gone considerably beyond our present knowledge, at a time when our ancestors were still in the Upper Paleolithic.

About twenty-three thousand years ago . . .

13

TWENTY-THREE THOUSAND YEARS AGO

Twenty-three thousand years ago, the earth had not yet emerged from the Würm III glaciation.

What we know about that glaciation leads us to believe that its cause was not something limited to our planet. Only 0.3 percent of the heat at the surface of the earth comes from its interior; the remaining 99.7 percent comes from the sun. A variation in solar radiation must therefore have been responsible for the reduction of heat. That makes it quite probable that Mars and Venus also went through a period of great cold at the same time as the earth.

Twenty-three thousand years ago, the earth was essentially the same as it is now. The same is true of Mars. Twenty-three thousand years is only a fleeting moment on the scale of the geological evolution that stretches over tens of millions of years.

With regard to Venus, there is uncertainty: twenty-three thousand years ago, Venus may have been similar to the earth, with a flora and fauna that had appeared at about the same time and reached an approximately equivalent stage of evolution. The uncertainty will persist until man, by a procedure that has not yet been invented, though its principle can already be envisaged, has dissipated the opaque clouds on Venus, under which life may have died out after having reached the stage of life on earth in the Upper Paleolithic.

Without going beyond the limits of the speculatively plausible, we can make the assumption that twenty-three thousand years ago the earth and Venus were ravaged by similar cataclysms, while Mars, lacking an ocean to evaporate and an atmosphere dense enough to hold swirling clouds of volcanic dust, would have seemed to be the only inhabitable planet of the three, to a group of astronauts who had come from too far away to turn back.

The Bible, supported by the sacred books of other civilizations that appeared abruptly at the dawn of historical times, relates the arrival of Celestials who seem to have begun by circling the earth while it was surrounded by opaque clouds, then lived on the earth, did a certain number of things there, and finally left as they had come.

Reducing the "novelistic" elements—that is, the bridges that imagination builds between two isolated known facts—to a strict minimum, we see a coherent whole that is compatible with both the Biblical text and the already conceivable possibilities of today's science and technology. But it has not yet been experimentally verified to any extent whatever. Is that obvious? Not at all.

Victor Berard, a renowned Hellenist, announced that he was about to discover Zeus's tomb. Since Berard had always accomplished what he had predicted, it is quite likely that if he had not died too soon, he would have found Zeus's tomb—which would have proved nothing, because he would never have been able to prove that "his" Zeus was a Celestial and not a handsome man who passed himself off as a god.

No one has ever been able to explain how prehistoric men handled the two-thousand-ton blocks of stone with which Baalbek was built. No one has been able to explain how or why an ancient people in what is now Peru made the straight "landing strips" that aerial photographs revealed only recently. No one has been able to explain a dozen enigmas of the same kind. And no one has ever understood what could have driven prehistoric men to make the unimaginable efforts required to build such things. Since we cannot imagine how or why human beings could have built them at a time when even bronze had not yet been invented, it is tempting to say that they must have been built by Celestials.

But saying that the terraces of Baalbek were built by Celestials (whose existence is precisely what has to be demonstrated) is a prime example of begging the question, that is, presupposing the conclusion that one has set out to establish.

A remarkable aerial photograph taken by Tony Saulnier above the mountains of Peru shows wide, straight strips ending at the edge of a plateau, like runways on an airfield. Were they built for airplanes flown by "gods?" One may think so, but it cannot be stated as a fact.

We must resign ourselves to accepting the rule that any structure or artifact found on earth must be attributed to human beings.

Any irrefutable proof of the arrival of Celestials will have to be found on the moon or Mars. A monkey wrench, made in neither the United States nor the Soviet Union,

found on the moon and brought back to earth, would be incomparably more conclusive than Baalbek, or the "landing strips" in Peru, or the statues on Easter Island, or all other enigmas combined. Any artifact found on the moon will be proof that other intelligent beings were there before us.

As we saw in the preceding chapter, theoretical physics uses established knowledge to draw up a kind of crossword puzzle in which the realities of tomorrow are inserted before they have actually been discovered. Thus quarks have been posited by theoretical physics because if they did not exist, the results of certain experiments already performed would be inexplicable.

The portrait of the gods that I propose in the next chapter constitutes a kind of theoretical theology: if the gods did not exist as concretely as you and I, whole segments of ancient knowledge would be inexplicable.

14

ARTISTS CONCEPTION

In police terminology, an "artist's conception" is a portrait of a missing suspect drawn by an artist on the basis of descriptions by witnesses. The testimony of some witnesses must be disregarded. There are sometimes people so eager to make themselves interesting that they let their imagination supply details—"He had a reddish moustache and shifty eyes! "—that they were in no position to see.

For our "artist's conception" it is easy to discriminate between reliable and unreliable witnesses because the only "gods" who interest us are those who—if they existed—entrusted the priests of certain societies with teachings that gave them knowledge obviously superior to any knowledge that prehistoric men could have acquired by their own means.

The gods of contemporary primitive societies therefore do not interest us: either their heirs have lost the revealed teachings, so that their testimony is no longer valid, or they have worshiped false gods, charlatans who claimed to have come from the sky but did not have the scientific knowledge without which space travel is impossible. The testimony of ancient Egypt does interest us, and so does that of Babylon: their civilizations had knowledge that surpassed what one would expect to find at the dawn of historical times.

We are interested only in a portrait of gods who behaved like astronauts and were described by societies that drew practical applications from the teachings revealed to them.

One thing must be pointed out: those societies which abruptly appeared at the dawn of historical times with a highly developed civilization all had as their spiritual and administrative center a city located in or near a narrow strip of land marked off by latitude $29^{\circ} 30'$ north, which constitutes the southern limit of the present state of Israel (Gulf of Aqaba), and latitude $33^{\circ} 30'$ north, which constitutes its northern limit (Galilee).

I offer no explanation for that fact. I will simply point out that in that narrow strip of land, going from west to east, are the Pyramids of Giza in Egypt, Jerusalem, Akkad, Babylonia, Ur, Sumer, Persepolis, Lahore (which was the capital of the Mongols), Delhi, Lhasa (Tibet), and Nanking. Any attempt to find an explanation in terms of a similarity of climate would be absurd: it would have to include Giza, in Egypt, and Lhasa, in Tibet. As for a "mystical" explanation, it is always convenient, but it has the drawback of being able to explain either of two contradictory propositions with equal ease. And a "semi-mystical" explanation by "telluric currents," about which so little is known that anything at all can be attributed to them, leads to the flagrant absurdity of trying to find an identity among the opinions professed today in Lhasa, Persepolis, Jerusalem and Cairo.

The early civilizations mentioned above had at least two things in common: they all had knowledge that seems 72 impossible for prehistoric men to have acquired on their own, and they all attributed it to two-legged mammalian gods who came from the sky. I will therefore use the testimony of those civilizations as my guide in drawing a portrait of the Celestials required by my hypothesis.

The first detail I will point out is that the Celestials were not numerous. The myths all leave the impression that there were between thirty and forty of them. Cabalists speak of forty-nine "divine names" in the Bible, but some of them seem to be duplicates, so the total number falls within the assumed limits. These gods lived in couples, although their family life is divulged only rarely, and then usually in an embellished form.

Thirty to forty: that is the size of the crew anticipated by scientists when they amuse themselves by making speculative plans for an interstellar expedition.

Let us imagine fifteen to twenty human couples discovering a planet populated by bipeds in our image, but as primitive as our ancestors of twenty-three thousand years ago; they have not yet invented the bow or even the spear thrower. There are about a million of them on the planet. They are strong and hardy, accustomed to living under harsh conditions, intelligent despite their primitivism, artistic, and superstitious, though they have already gone beyond simple hunting magic ...

Suppose you and I were among those thirty to forty Celestials. What would we do? We would begin by taking a few specimens of the native bipeds, luring them with trinkets or canned food. We would select the most quickwitted individuals and "fashion them in our image," as colonizers have always "fashioned" servants and workers from among the native population. We would learn the first rudiments of the natives' language by pointing out animals to them and noting what they called them. That was what the Elohim of the Bible did, as you can verify by reading Genesis 2.19.

Once communication with the natives had been established, we would begin training some of them to do specialized work. We would have them build a wall around 73 a vast park, and put them to work growing food.

In Genesis 2.15 we read that the Lord God (Adonai Elohim, or Lord of the Celestials) "took the man and put him in the garden of Eden to till it and care for it."

I could go on this way, step by step, citing each of the passages in Genesis on which I base my portrait of the gods, but it would soon become dull reading without being any more convincing. I will therefore suggest two choices: either take my word for the Biblical foundation of what I am saying, or read this chapter through, put down my book, take a Bible and make your own verification by reading the first nine chapters of Genesis, the only ones that interest us here, the chapters that describe the arrival, activities and departure of the Celestials. I would, of course, prefer you to make the second choice.

The Hebrew text tells us nothing about the spacecraft; it simply says that the spirit of the Elohim hovered over the earth. It was after this that the Elohim brought back light, replaced chaos with order, and settled down on our planet. Sanskrit texts refer to an "immense egg" from which the Celestials are said to have debarked. And among the various means of interstellar travel suggested by the scientists quoted in Walter Sullivan's *We Are Not Alone*, there is an "immense egg," that is, a spacecraft large enough to allow several generations of astronauts to live, procreate and die in the course of a journey at a speed great enough to make the dilation of time appreciable aboard the craft, in relation to the planet from which it left.

At this point we can stress one of the differences between an "artist's conception" and a purely imaginary portrait: an "artist's conception" showing the suspect as a fat man will be unacceptable if it is known that the crime for which he is being sought was committed by someone who entered the house through a narrow basement window. If the home planet of our Celestials had not aged several centuries during their journey, they would have returned to it as soon as they encountered serious difficulties in colonizing their new planet. But the impression given by all the sacred books is that although the "gods" were greatly disappointed by men, they remained on earth for lack of anywhere else to go. The hypothesis of an "egg" two miles in diameter, launched by an advanced civilization that employed several thousand technicians to make preparations for the departure of thirty astronauts, is consistent with the gods' initial decision to remain on earth despite their disappointment, and with the fact that, as we shall see later, they seem to have abandoned their "egg" in the solar system and finally left in a spacecraft whose departure was controlled from inside, since the primitive earthlings were incapable of carrying out a ground-controlled launching.

But if their home planet had reached such a high stage of civilization, why did they leave it? I do not know, because there are two incompatible explanations that could both account for their departure. I can only present them one after the other.

The first one is that in a planetary system that solidified before ours, life appeared sooner, evolution led to a civilization that had spacecraft before our ancestors knew how to make flint tools, and adventurous astronauts set off for another planetary system where they had good reason to believe that the primitives would receive them as gods. This first explanation is easier to accept because it means that the colonization of our planet must have been a unique case, or at least involved a reassuring element of chance.

The second explanation is that we are only a link in a chain of civilization beginning at the center of our galaxy in a planetary system of the constellation

Sagittarius (Sagittarius is the Latin word for "archer"), and that the "bow of the covenant" will reveal much more of that civilization to us who have found it "in the cloud" where the Celestials of the Bible promised Noah that they would leave it. This second explanation is more difficult to accept because it involves the idea of an organization extending throughout the whole galaxy. I admit that I prefer it, because it seems more logical to me than an explanation in terms of colonization by pure chance.

But I do not want to wander too far from the subject of this chapter, which is a portrait of the Celestials compatible with both the Bible and modern science. With what we have just seen, it is easy to draw that portrait: the gods of the Myth are in the image of the astronauts our civilization will someday send-off to be received as gods by the primitives of another planetary system. Is that a proof of their existence?

Let us return to Emile Guyenot and his *L'Origine des Especies*: "None of the arguments drawn from comparative anatomy and embryology is valid as a direct proof of transformism. After the elimination of all dubious or false interpretations, there remains a series of highly plausible deductions which, added to the paleontological evidence, constitute a coherent whole that can be interpreted only in the light of the hypothesis of evolution. That hypothesis thus becomes a near-certainty."

That is what I would have Eked to write about my hypothesis of the concrete reality of the Celestials described in the Myth. I have no direct proof (if there is any, it is on the moon). I am burdened with obliging but naive enthusiasts who are inclined to regard anything they see in the sky as a spacecraft confirming my hypothesis. But it seems to me that when one considers it rationally, my hypothesis of the concrete reality of the Celestials described in the Myth becomes a near-certainty.

15

IN THE BEGINNING

In the beginning God [the Elohim] created heaven and earth. The earth was without form and void, with darkness over the face of the abyss, and the spirit of God hovering over the surface of the waters*
Genesis 1.1

Now that we have a portrait of the Celestials, let us consider the "sky" from which they came.

A civilization that has reached the stage of interstellar travel can scarcely be imagined without one or more astronomical observatories located outside the atmosphere of its planet. One of the first practical uses that we will make of the moon will probably be to install a telescope on it so that the sky can be observed without looking through the earth's atmosphere, whose constant turbulence is responsible for the "starry" look of the stars—which are spheres, like the sun.

Are the planetary systems as uniform as salt crystals? That is the view presented in 1963 by Lloyd Motz,

* This quotation contains two alternate renderings given in The New English Bible: "In the beginning God created heaven and earth" for "In the beginning of creation, when God made heaven and earth," and "the spirit of God hovering" for "a mighty wind that swept." (Translator's note.)

associate professor of astronomy at Columbia University. An observatory on the moon will make it possible to determine whether or not Motz's thesis is correct, since its telescope will show the round, opaque dots of planets passing in front of stars that have planetary systems.

It is probable that the Celestials had already discovered the existence of planets orbiting our sun, just as we will determine the existence of planets around a star before we send our astronauts toward it.

The first problem to be solved in interstellar travel is to propel a spacecraft whose size and weight must be proportionate to the distance it will travel. It is therefore a problem of energy. According to the most optimistic calculations, even the controlled fusion of hydrogen ("taming the energy of the hydrogen bomb"), when it has been accomplished, will fall far short of supplying the energy necessary for interstellar travel.

But the next step will be the fission of the proton into three quarks. Utilization of quark energy still lies in the distant future—unless we find on the moon a "bow of the covenant" containing, among other things, information on the physics of quarks.

One thing seems certain: astronauts could not have visited our prehistoric ancestors if they had not been able to utilize the energy of quarks.

But a source of energy is not enough. There still remains the biological problem: can we seriously envisage thirty men and women setting off on a journey of twenty years—or a hundred—in a spacecraft?

At first it seems implausible. And then, when you think about it . . . Ten years ago, it still remained to be seen whether a man could live in a capsule orbiting the earth, and since then . . .

In 1967 and 1968, the Soviets demonstrated that three men could live for a year in a closed circuit, drinking their own purified urine and perspiration and eating their own solid waste matter after it had been used as fertilizer and transformed into vitamin-rich food by photosynthesis in artificial light. Furthermore, they demonstrated that three men could live for a year in such conditions and remain on friendly terms with each other, which was something that could not have been predicted with any certainty before the experiment.

If we think about it a little, it seems perfectly rational to consider launching fifteen human couples—less than the population of a village—on a journey that will last one or more centuries, provided they are in a spacecraft larger than a village. In a sphere with a diameter of two miles, for example, which would have a usable inside area of ten square miles.

Those who set off on such a journey will surely have problems of adjustment, but their children or grandchildren will have difficulty adjusting to life in the open air when they have reached their destination. Having been born inside a sphere with an invariable climate, they may not find it easy to live on a sphere with alternating seasons, and they may be as much inclined to suffer from agoraphobia as the first-generation astronauts were to suffer from claustrophobia.

The biological problem is no less complex than the problem of energy, but it is no more impossible to solve.

I refer you to pages 234-235 of Walter Sullivan's *We Are Not Alone*, where he reports Darol Froman's presentation of a plan to move the entire earth and place it in orbit around a new star when our sun has begun to burn out. The journey might last as long as eight billion years and reach a star as far as 1300 light-years away. The plan is highly speculative, to say the least, but it is not a pure fantasy: Darol Froman is a former technical associate director of the Los Alamos Scientific Laboratory.

What is theoretically conceivable for the entire earth is easier to imagine for a sphere the size of Phobos, one of the two moons of Mars. The behavior of Phobos is abnormal for a natural satellite, but perfectly normal for a hollow, spherical spacecraft placed in orbit around Mars after a long interstellar journey.

Mars has two satellites: Phobos and Deimos. They have nearly circular orbits, situated almost in the plane of the 79 equator of Mars. Phobos makes about three revolutions around Mars per Martian day, at a distance of about 3700 miles (the average distance of the moon from the earth is about 240,000 miles). The Soviet astronomer Shklovsky reports that Phobos is losing altitude and may be destroyed in the near future, because if it comes about a thousand miles closer to Mars, the latter's gravity will cause it to fall like a stone.

None of these characteristics of Phobos has been noted for any other heavenly body except artificial satellites launched by man, and none of them seems capable of being seriously explained by theoretical astronomy. If, however, Phobos is the spacecraft I have described in Chapter 10, all its seemingly abnormal characteristics are actually quite normal.

If everything is so clear, why has my explanation never been proposed before? Because it is based on the hypothesis of the historical reality of Genesis, a hypothesis that I am so far alone in formulating within the framework of modern scientific knowledge, and because serious psychological blocks must be overcome before the Bible can be regarded as neither a supernatural revelation nor a mass of superstitious nonsense, but as a genuine historical document.

Shklovsky has supported the hypothesis that Phobos is an artificial satellite, but he has never connected that with the idea of a visit by astronauts that would confirm the account in Genesis.

The exact diameters of Phobos and Deimos are not known. Their size is estimated on the basis of their brightness, that is, their reflectivity. To quote *Planetes et Satellites*, "if Phobos and Deimos are big stones, their diameters are something like

eight and five miles, respectively." If they are spheres of polished metal, their diameters are about one mile and five-eighths of a mile. But if they are made of metal that has lost its brightness, as one would expect of spheres that had made a long journey in space, the figures fit in with my hypothesis of a diameter of about two miles for Phobos and a mile and a quarter for Deimos (assuming that they are identically made, which has not been established).

I do not know the detailed program of unmanned exploration of Mars, but it is probable that new information on Phobos and Deimos, which pose such irritating questions, will soon be gathered by "the spirit of man hovering over the surface of Mars."

Inside a sphere with a diameter of two miles, life could seem quite comfortable to fifteen or twenty couples of two-legged, mammalian astronauts willing to sacrifice themselves so that their descendants could be gods in the younger planetary system toward which they were heading, practicing the strict birth control necessary for maintaining the same number of travelers.

I will not be foolish enough to try to calculate the speed of the spacecraft; I will only suggest that perhaps by the time the fourth generation of astronauts had reached adulthood, Phobos was approaching the orbit of Pluto, but that six hundred years had gone by on Theos, the planet from which Phobos had departed.

The astronauts had left a civilization which, having realized most of the wild dreams that fascinate all scientists worthy of the name, had no further task ahead of it other than the improvement of everyone's daily life, a dull prospect for any true scientist. The astronauts left on friendly terms: stay-at-home scientists had worked to make their departure possible in the hope that news from their distant explorations would add a little spice to stay-at-home science.

We are still a long way from having reached such a stage, but, theoretically at least, there must be a point where scientists, having discovered everything, play chess every day of the week, for lack of anything better to do.

16

BEGINNING OF THE FIRST DAY

The earth was without form and void, with darkness over the face of the abyss, and the spirit of God [the Elohim] hovering over the surface of the waters.
Genesis 1.2

As the hollow sphere, about two miles in diameter, was I approaching the orbit of Pluto, the gravitational pull of the sun began making itself felt. There was great joy aboard the spacecraft.

It is always hazardous to describe something you have not seen for yourself, but there is no great risk in stating that the joy aboard the spacecraft was manifested without exuberance: people who were born inside a hollow sphere moving through interstellar space, who had therefore never felt the warmth of the sun or the coolness of a breeze, and who were born of parents and grandparents who had lived their whole

lives in the same conditions—such people must surely have had what we would describe as an inward, self- j controlled character.

But even the most inward people feel their own special kind of joy. The astronauts in Phobos had good reason to I be joyful: they had reached the planetary system that their great-grandparents had set as their destination. The time had come to take the leader of the expedition, the Adonai, and his assistant Shaddai, out of the freezer.

It goes without saying that I do not know how this took place. But I do know that if Genesis reflects a historical reality, the Celestials it describes were astronauts similar enough to our own to justify us in trying to understand them. This book is a transposition based on that postulate. To do what Genesis says the Celestials did, human astronauts would have had to arrive in a spacecraft like Phobos and follow the line of behavior I am ascribing to the Celestials.

The Adonai and his assistant Shaddai were the initiators of the expedition. They were two of the leading scientists of Theos, their home planet. To prevent their death during the long journey, they were placed in suspended animation by freezing, so that they could give the benefit of all their knowledge to the astronauts who reached their destination. Those astronauts were, of course, the great-grandchildren of those who had begun the journey, and they could be expected to have difficulty in adapting themselves to life on the surface of a planet, after having never lived anywhere but inside a sphere.

I will pass over the technical problems here; the interested reader can find them in Walter Sullivan's *We Are Not Alone*, whose bibliography will reassure skeptics:

They will see how the problems of travel in a spacecraft like Phobos are handled by thoroughly qualified theoreticians. I will limit myself to what Genesis says about the arrival of the Celestials. At that "beginning," when the "spirit" of the Elohim "hovered" above the earth, "the earth was without form and void, with darkness over the face of the abyss." As we saw in Chapter 13, it was in about 21,000 B.C. that the Wiirm III glaciation resulted in a layer of opaque clouds surrounding the earth. Venus was in the same state. Only Mars, lacking oceans and having only a very thin atmosphere, continued to receive sunlight on its surface. As was pointed out in Chapter 6, the glaciation must have resulted from causes that affected the whole solar system.

After passing the orbits of Pluto, Neptune and Uranus, the spaceship Phobos reached the orbit of Jupiter, whose fourth moon, Ganymede, with its diameter of 2950 miles (the diameter of Mars is 4230 miles), may have an atmosphere. (In 1965, the Russians concluded that it did have an atmosphere; in 1966, the Americans contested that conclusion.) Did Phobos make a stopover in orbit around Jupiter?

The hypothesis would not be worth mentioning if it were not for Greek mythology, which says that the twelve gods lived "in Olympus" around Zeus, whose Latin name is Jupiter. Chance alone may very well explain the fact that the planet Jupiter has precisely twelve moons, which were not discovered until the invention of the telescope. Chance would be sufficient if we called on it to explain only one or two coincidences. Or three. But the concordances between the Myth and realities that

could not have been discovered until recent times are so numerous that if Ganymede is mentioned in the "bow of the covenant" that I expect to be found on the moon, I will not be greatly surprised.

Having said that, let us pass the orbit of Jupiter. We now enter a different world. Pluto, Neptune, Uranus, Saturn and Jupiter are still in a state closely related to the protoplanetary state: the mass of the solid core is only something like one percent of the total mass of the gaseous protoplanet. But when we have passed the orbit of Jupiter we come to that of Mars—a planet where, according to Wernher von Braun (in his book *First Men to the Moon*), it can be taken for granted that life exists.

Between 22,000 B.C. and the present, natural evolution has had little appreciable effect on Mars. The Martian life that von Braun mentions has surely never reached a stage of evolution advanced enough to produce beings capable of making canals or putting artificial satellites in orbit. But in 22,000 B.C. Mars was a conceivable stopping place for astronauts, as it still is today. The earth and Venus had been made difficult to use by the opaque clouds resulting from the Wiirm III glaciation. Mars was not only a conceivable stopping place, it was obligatory. And so Phobos was placed in orbit around Mars.

At this point I must open a parenthesis. Fifteen years 84 ago, a sentence like "Phobos was placed in orbit around Mars" was enough to make a book be classified among the most gratuitous imaginings of science fiction. I will close the parenthesis by saying that everything you have read in this book is compatible with data accepted by qualified scientists, and that nothing in it falls into the category of that gratuitous science fiction which leads to books like EL G. Wells' *The War of the Worlds*.

Let me make it clear that when I say that a spacecraft from another planetary system went into orbit around Mars, I am not affirming it categorically: I am stating it as a hypothesis compatible with both modern science and the Myth that has come to us from the depths of time. Is it a true hypothesis? We will know whether it is or not in the near future, since Mars follows the moon as the next step in our space program. And if my entire hypothesis is correct we will know even sooner, because in that case the "bow of the covenant" is waiting to be found on the moon.

If Phobos is the spacecraft I am proposing, its behavior in orbit around Mars loses all mystery and Shklovsky's observations are confirmed. Let us suppose for the moment that it is that spacecraft.

Two exploration modules left Phobos to circle the two other inhabitable planets in the system: Earth and Venus. When the first module returned, the pilot and his observer made their report: "Earth appears to be uninhabited. It is surrounded by a layer of opaque clouds that leaves its surface in darkness. Capsules have been left in orbit above the clouds and inside them. They will continue to transmit their observations to Phobos."

The second module came back a little later, because it had made a longer journey: to Venus. Its conclusion was that Venus was in the same condition as Earth, plunged in darkness, without observable life.

The choice was clear. Earth had a natural satellite, free of clouds, that could be used as a convenient base, so it was Earth that would be transformed into an Eden. This meant that life on Venus was doomed, because sunlight would not be brought back in time to save it from extinction.

To sum up, a group of astronauts had left their home planet, Theos, so that their descendants could become the gods of another planetary system. Their descendants had now reached their destination. The initiators of the expedition, Adonai and Shaddai, had just returned to active life after their stay in the freezer. They and the other astronauts began elaborating a plan for making the earth inhabitable again.

Had they known about the Wiirm III glaciation in advance? I do not know; I can say only that from our viewpoint, finding frozen planets at the end of a space journey would be a serious complication which we would gladly do without, but that this is less obviously true from the viewpoint of the astronauts from Theos, as we will see in later chapters.

17

END OF THE FIRST DAY

God [the Elohim] said, "Let there be light," and there was light; and God saw that the light was good, and he separated light from darkness. He called the light day, and the darkness night. So evening came, and morning came, the first day.
Genesis 1.3-5

The habit of using the word "day" for a period of time that may actually cover centuries is so familiar that there is little chance of confusion when we read a sentence like this "Only yesterday, men believed that the earth was flat yet tomorrow they will be traveling to other planets." "

In reading the Bible, the only source of confusion is that we have become accustomed to regarding our days as beginning at dawn, whereas the Bible and the Hebrew Tradition consider that a day begins at sundown. The Jewish Sabbath begins at nightfall on Friday and lasts until nightfall on Saturday.

What is true of a twenty-four-hour day is also true of a "day" that last* more than twenty centuries. Yes, twenty centuries—2160 years, more precisely—as we will see in the chapter devoted to the fourth "day." The first "day" lasted more than twenty centuries? That seems very long for a program as simple, in principle, as bringing sunlight back to the earth, but a good part of the first "day" must already have passed by the time the Celestials arrived.

In the remaining centuries of that "day," they probably began by turning the moon into a usable base. Was it a combination of natural causes that made the moon always present the same side to the earth?

It is possible, and several commonly accepted explanations seem to lead to that conclusion. But those explanations, formulated before anyone had raised the

possibility of an intervention by astronauts, are somewhat mutually contradictory. Even so, I may be mistaken in suggesting that the moon was stabilized by artificial means. If I am, it will not invalidate my whole theory, but such an artificial stabilization seems so logical to me that I prefer to take the risk of including it in the Celestials' overall plan as I believe I have reconstructed it. This chapter, which will be short because I lack solid evidence, seems to me a good place to remind you that there was nothing supernatural about "my" Celestials.

They were astronauts, and their activities, as described in the Bible, were neither more nor less "wondrous" than those of American and Russian astronauts.

Nothing that I ascribe to the Celestials is gratuitous; everything I ascribe to them is indicated in the Biblical text, and compatible with what our rudimentary space technology enables us to foresee for interstellar travel. With regard to the program of the first "day," however, I must rely mainly on imagination, because I lack specific data. I believe that the Celestials' first concern must have been to adapt themselves to life outside their spacecraft. Even though they were born inside a sphere, their hereditary traits must have prevailed.

At the time when they arrived in our solar system, Mars was the only inhabitable planet. They must have lived there for a time, probably in an underground base where it was easier to collect the scarce water and air than it would have been on the surface. This is something else that may be confirmed in the relatively near future, when our own astronauts have landed on Mars.

Like Phobos, Deimos, the second moon of Mars, is unusual in having an orbit that lies almost exactly in the plane of the Martian equator, and while its distance from Mars—about twelve thousand miles—is three times as great as that of Phobos, its orbit still seems more likely for an artificial satellite than for a natural moon. Was Deimos a "freight car" drawn by the "locomotive" Phobos? Was Deimos a "workshop" built after Phobos arrived? One thing is certain: Deimos is only a little more than half the size of Phobos.

The "canals" of Mars were first reported in the late nineteenth century by observers using telescopes that were rudimentary by today's standards. The straightness attributed to the "canals" was taken as proof that they had been made by intelligent beings native to Mars, because in the nineteenth century space travel seemed much less plausible than the existence of native Martians. The reality of those "canals" is no longer accepted in Europe, but the map of Mars used by NASA is that of Earl G. Slipher, an astronomer who continues to report seeing what might be described as "canals" on Mars.

Are there Martians who, by feats of advanced technology, have managed to survive on their planet despite its scarcity of water and air? It seems most unlikely because, disregarding the "canals," there is every reason to believe that general conditions on Mars have never been suitable for the evolution of life forms complex enough to develop technology. But even though the "canals" are not actually canals, they cannot be simply dismissed, because they are strange enough to cause a division of opinion among astronomers. That leads to consideration of a third possibility, the one I am proposing: that life on Mars has never been able to evolve beyond an

elementary stage, and that feats of advanced technology were once carried out on the planet nevertheless—by the Celestials of my hypothesis, not by native Martians.

It would be useless to go on in this vein because no one has anything better than conjectures to propose where Mars is concerned. Furthermore, the time when Mars will be explored is so near that anyone who expects to live at least another decade must be very cautious if he wants to avoid the embarrassing possibility of having his theories spectacularly exploded by firsthand reports.

Let us therefore leave Mars and its somewhat unnatural-looking satellites and return to earth, where we will be on more solid ground. In 21,500 B.C., sunlight was unable to reach the surface of the earth. By the beginning of the second "day," about 20,000 B.C., sunlight had returned, as is stated in the Bible and confirmed by geology. Myths from sources other than the Bible are subject to caution, but they can be used to illustrate specific points even though they have not been transmitted with the almost inhuman rigor of the Hebrews, who stoned anyone who changed so much as a single letter of the text attributed to the Celestials. In those myths, the moon constantly appears as a kind of space platform of the gods—and it will probably be used in the same way by modern astronauts.

I will take the risk of proposing the following reconstruction of the program for the first "day." The Celestials reached our solar system in their spherical spacecraft two to four centuries after the Cataclysm set off by the Wiirm III glaciation. After a stopover in orbit around

Jupiter, they continued on their way and placed their spacecraft in orbit around Mars, where it still remains. We know it as Phobos.

Next they made an underground base on Mars. We may still have evidence of it in the "canals" of Mars, which are not actually canals, but are not an optical illusion, either. They then stabilized the earth's natural satellite by releasing its volcanic energy to increase its diameter. (The principle of the conservation of angular momentum explains how such stabilization, natural or artificial, could take place.)

When the moon had been stabilized so that it always had the same side facing the earth, the apparatus needed for dispersing the opaque clouds around the earth was installed in a lunar crater. (Our own scientists would probably be already considering the possibility of dispersing the clouds of Venus in the same way, if Venus had a moon from which the effort could be directed.)

Once the clouds had been dispersed, the Celestials congratulated each other on the success of the first phase of their six-phase plan. The earth now had an evening and a morning every twenty-four hours.

Parenthetically, if you are afraid I am trying to mislead you when I ask you to read "the Celestials" instead of "God," and when I suggest that those flesh-and-blood Celestials brought back light to the earth, rather than following the usual translations of the Bible, which show an all-powerful God creating light, presumably from nothing, reread Genesis and reflect on what you are reading: that God who does not realize that light is good until after he has created it, and does not give it a name until after he has verified its brightness, is a bumbling god for primitive tribesmen. He does not know

whether or not he will be able to see clearly when he has created light; he creates it, observes it, and is delighted to have succeeded with his first attempt.

But the fact that the usual interpretation leads to an absurdity is certainly not enough in itself to prove that a logically defensible interpretation is correct. If the text is absurd, anyone who tries to make it say sensible things is wrong.

To reassure ourselves, we can read the thirty-eighth chapter of the Book of Job, where Adonai, the "Lord" of the Celestials, speaks to Job and asks him where he was when Adonai "laid the earth's foundations," and when "the morning stars sang together and all the sons of God [the Elohim] shouted aloud."

This confirms what I have proposed: Adonai was the "Lord," or leader, of the Celestials; it was he who "laid the earth's foundations"; the stars existed before the earth was "founded"; the sons of the Elohim acclaimed the completed work.

One might even go so far as to interpret the "singing together" of the stars as messages of congratulations coming from other inhabited planetary systems with which the Celestials had maintained regular communications . . .

Let me add that Jewish theologians consider that the Book of Job dates from several centuries earlier than Moses and even Abraham. In the Hebrew Tradition, the Book of Job is a "testament from the sky" in the same sense as the Law of Moses.

18

SECOND DAY

God [the Elohim] said, "Let there be a vault between the waters, to separate water from water." So God made the vault, and separated the water under the vault from the water above it, and so it was; and God called the vault heaven. Evening came, and morning came, a second day.

Genesis 1.6-8

The work of the second "day" appears obvious and clear when one asks the text to say only what it says. After having dissipated the opaque, dust-laden clouds (work of the first "day") and thus brought back to the earth the light of a normally covered sky, the Celestials still had a great deal to do. The oceans were at a very low level, with part of their water frozen in glaciers and part of it suspended in heavy clouds. The Celestials decided to put a "vault" between the water above and the water below.

A "vault?" A better translation of the Hebrew word would be "space." The space between water "above," in the form of clouds, and the water "below," in the form of seas and streams? That is what the text implies, and it is perfectly logical.

But the work of the second "day" appears obvious and clear only if the text is not asked to say anything but what it says. Pious interpreters have strained the text, trying to make it yield a God for simple souls, traditionally conceived as a bearded patriarch—as Zeus, in short—creating the earth from nothing. The result is the ludicrous story of a God who has only to say "Let there be light" in order to create light, and then, in the universe thus illuminated, sees that he is floundering in a sea of

mud and must find some way of separating the "waters above" from the "waters below."

When the text is read without such "prodding," the work of the second "day" follows logically from the work of the first: the first phase of the plan was to bring sunlight back to the earth; the second phase was to restore the balance between water on the ground and water in the clouds.

Two thousand years to precipitate the clouds in rain? That seems like a long time, at first sight. The scantiness of the work done during the second "day" would be the weak point of my interpretation of the Bible if it were not for the second chapter of Genesis, which uses the literary device known as the flashback.

In that chapter we return to the beginning of the story, when the Celestials had brought sunlight back to the surface of the earth but had not yet restored plant life. It was during this time that they first say the native bipeds of earth come out of the "ground," that is, from their caves. Here are verses 4-7 of the second chapter of Genesis:

"This is the story of the making of heaven and earth when they were created. When the Lord God [the "Lord" of the Elohim] made earth and heaven, there was neither shrub nor plant growing wild upon the earth, because the Lord God had sent no rain on the earth; nor was there any man to till the ground. A flood used to rise out of the earth and water all the surface of the ground. Then the Lord God formed a man from the dust of the ground and breathed into his nostrils the breath of life. Thus the man became a living creature."

The story now becomes coherent and logical. When sunlight had been brought back to the earth, the Celestials took time to make an adequate installation on Mars and then, using the moon as a base, they made an inventory of the earth. They had to be extremely cautious in their explorations. Since there were only thirty to forty of them, separated from their home planet by a journey of several centuries, they could not afford to risk any lives. Despite their technological superiority, those thirty to forty scientists had to proceed with a slowness that is hard for us to comprehend: when we have reached the stage of bringing sunlight back to the surface of Venus, the men working at the task will probably number in the tens of thousands.

Was Phobos the "space locomotive" of the Celestials, and Deimos their "space freight car?" Less than fifteen years ago, the concrete possibility* of space travel was still so uncertain that excellent scientists merely shrugged their shoulders when the subject was mentioned to them; today those same scientists no longer reject the idea that the two moons of Mars may be spacecraft "parked" in orbit.

But no matter how good their equipment may have been, the Celestials were still a small group. Their most important discovery came when they found a native species capable of receiving "the breath of life," that is, intelligent enough to be trained and educated. Everything now became possible, beginning with putting the entire earth back in order. The Celestials had ample time before them; they could think in terms of thousands of years.

No, the idea of a group thinking in terms of thousands of years is not a wild fantasy.

The Catholic Church was expressly constructed to last for thousands of years, and so was the Synagogue. For nineteen centuries, Jews have been repeating, "Next year in Jerusalem." Most of us seldom think more than a few years ahead, but that is no reason for assuming that a plan stretching over thousands of years is an absurdity.

The Celestials had ample time before them, first of all because they had confirmation of a theory comparable to that of the modern scientist who considers that planetary systems may be as uniform as salt crystals. According to this theory, all stars of the same category as our sun have planetary systems containing one, two, or perhaps even three planets capable of being inhabited by creatures like us, made of carbon, nitrogen, hydrogen and oxygen. When civilization on one of those planets reaches the stage where scientists are beginning to be bored, some of them may go off on an interstellar expedition and become the progenitors of a line of gods in a younger planetary system where life appeared later than in their own. The number of stars that may have planetary systems comparable to ours is estimated at something like a hundred million.

If the theory of uniformity among planetary systems is correct, there is nothing urgent about the development of any particular planet. When astronauts come to a planet as "gods," they know that succeeding generations can take thousands of years to "fashion" the native bipeds by educating them and perhaps improving them by controlled evolution. There is even the possibility of producing mutations by altering chromosomes.

Part of the second "day" must have been devoted to building an enclosed Eden with a controlled climate in a favorable part of the earth: the "Lord" of the Elohim "planted a garden in Eden away to the east, and there he put the man whom he had formed." (Genesis 2.8)

The earthlings placed in Eden were a selected sample of the native population. While Eden provided optimum living conditions for the Celestials and the natives who regarded them as gods, the rest of the planet gradually returned to normalcy.

Two thousand years? When I think about it, it does not seem at all excessive. To the Celestials, our planet was not a piece of property to be exploited, it was an immense laboratory in which they could test theories. A modern scientist may spend two years preparing for an experiment that consists in whirling a few particles in a cyclotron for less than an hour, then spend several months interpreting the results. If we transpose his patience on a planetary scale, we can better understand the attitude of the Celestials. They must have been so absorbed in their research that they scarcely noticed the passing of the millennia.

My imagination is coming away with me? There are no such down-to-earth meanings to be found in the Biblical text? Consider the following scene in Eden, Genesis 2.19:

"So God [the Elohim] formed out of the ground all the wild animals and all the birds of heaven. He brought them to the man to see what he would call them, and whatever the man called each living creature, that was its name."

I see nothing supernatural in the behaviour of the Elohim. I believe that the text

shows them to us as concrete scientists who revived the earthly species behind the walls of their Eden and employed the usual procedure of colonists seeking to learn the language of the natives.

If it was pure chance that brought this coherence into the text, we should all worship Pure Chance, because he is surely a great god. But what if it was not pure chance? If it was not, then the Biblical text tells of laboratory research performed on native genetic material by scientists whose goal was to reconstitute the various species as they had existed before the Cataclysm. It depicts the work of the biologists who had unlimited time before them and lived only for biology, in the scientific paradise that will soon take shape before our eyes.

19 THIRD DAY

God [the Elohim] said, "Let the waters under heaven be gathered into one place, so that dry land may appear"; and so it was. God called the dry land earth, and the gathering of the waters he called seas; and God saw that it was good. Then God said, "Let the earth produce fresh growth, let there be on earth plants bearing seed, fruit-trees bearing fruit each with seed according to its kind."
Genesis 1.9-11

After the flashback in the second chapter of Genesis, which sheds light on man's appearance at the end of the first "day" (and not during the sixth "day," as the usual interpretation states, against the clear evidence of the text), we will now come back to the first chapter to resume following the train of events.

In their enclosed Eden, the small group of Celestials now had the services of what they considered a sufficient number of natives, or Adams. In its controlled climate, the garden of Eden supplied the best food the earth could produce, improved by the scientists' efforts.

The Celestials were not conquerors. They had no need to awe anyone by a display of wealth or power. Whether we go by the description given in the Myth or by the image of the scientist as presented by our own civilization, we arrive at the same picture of a social group for whom mind took precedence over matter, who were wary of the spurious lure of wealth, and who had found their paradise, a paradise that would appeal to most scientists today: they lived among themselves, developing theories and putting them to the test of reality, and they were served by a small population that regarded them as gods.

They were relatively uninterested in the million or so bipeds who had come out of their caves after the return of sunlight and were now living outside Eden. Rats had also survived the Cataclysm, and they were perhaps more numerous than men! Animals outside Eden were part of the general experiment, but only as a control group. The most fascinating part was what happened in the laboratories of Eden.

The Celestials enjoyed themselves immensely in Eden. They could pursue their research on a planet where they were regarded as gods, and where they had no need to justify what they were doing in order to extract funds from reluctant government

officials. They could vivisect as they saw fit, without having old ladies of all three sexes telling them what they should and should not do. They lived in a paradise in the Mediterranean basin with a climate controlled by a meteorologist whose laboratory was Lilith, a small artificial satellite in orbit around the earth. They were lodged exactly as they wanted, Eden provided for all their needs, and they had an abundant supply of labor. They were gods.

The entomologist had taken some samples of an interesting insect species, living in the anarchy normal for insects, and given them a set of conditioned reflexes which now, after three hundred generations, seemed to have become hereditary. These insects, known to us as ants, had been released outside of Eden and the entomologist was waiting to see what would happen. Would the conditioned ants triumph over those living in a natural state, or would they be devoured? A similar experiment was being made with bees.

Insects were both easier and harder to work with than mammals: easier because they had so many generations in such a short time, harder because they were so small. The gods wanted to establish a biological equilibrium as orderly as a theory, with a breed of men, conditioned and improved by mutation, to rule over that veritable creation. But a suitable human breed would take much longer to develop. Serious experimentation on man could not begin until the gods had a stabilized human strain at their disposal, and that was something they could not hope to produce until much later, perhaps not until the sixth "day."

Whether they were botanists or zoologists, the biologists were happy. They had a wide choice whenever they wanted to begin a new line of experimentation on a "virgin" species. On Theos, where civilization had been many thousands of years old when the astronauts left, there had been only conditioned species; on earth, during the Upper Paleolithic, species whose evolution had been entirely natural were as easy to find as seashells on a beach.

In the meantime, following its own course without any interference by the Celestials, the earth was gradually * becoming as it had been before the Cataclysm. The Bible tells us that by the end of the second "day" the average density of the clouds had become normal again. We deduce that water falling from the sky had created vast marshes (as was only natural), since the work of the third "day" was to drain off the water into streams and seas. I have so far mentioned only biologists, but the geologists were not bored either.

We are in a difficult situation because we can no longer see things from the viewpoint of our ancestors, for whom an astronaut from Theos was indistinguishable from a god, and scientific achievements were indistinguishable from miracles. But our situation is made still more difficult by the fact that we are not yet capable of seeing things from the viewpoint of the gods. We are sitting between two stools: the earthly and the celestial.

We are only beginning to reason like astronauts about to set off on an interstellar journey; we are even less proficient at reasoning like astronauts who have reached their destination.

FOURTH DAY

God [the Elohim] said, "Let there be lights in the vault of heaven to separate day from night and let them serve as signs both for festivals and for seasons and years. Let them also shine in the vault of heaven to give light on earth."

Genesis 1.14

If the Bible is assumed to be incoherent, there is no reason why it should not be read as stating that the sun, the moon and the stars were not created until the fourth "day." It does not matter where the light of the first "day" came from, or how the planet life of the second "day" was able to produce fruit and seeds without photosynthesis. If the text is incoherent, that is a problem for exegesis, that is, the art of finding elegant formulations to mask embarrassing situations. A good exegetist is a man capable of taking an article on the theory of relativity and using it to demonstrate that the world was created by Einstein in six articles.

Christianity has had remarkable exegetists, so remarkable that they prevented even Voltaire from noticing the incongruity of the idea that the sun was not created until three "days" after the creation of light.

Is the Biblical text incoherent? I hope I have led you to doubt that, and to wonder whether it may not have a rigorous coherence that succeeding generations of exegetists have masked for various reasons.

(And not all of those reasons are blameworthy. Put yourself in the place of a medieval theologian who reads the Biblical text as I advocate reading it. His task is to assure the transmission of the Tradition until the time comes when men will be able to understand the text. Even if he is convinced that the Elohim came from another planet he cannot say so because his contemporaries are incapable of accepting such an idea. Their ignorance forces him to give a supernatural interpretation to a text that he knows to be a historical narrative. What can he do to show future generations that he knows the truth, but without saying more than his contemporaries can accept? He can only take part in the debate of the Byzantine theologians who maintained that the Celestials were angels, but angels made like you and me and any astronaut, because (those angels had sexes.)

Is the Biblical text coherent? I think it is. But after what I have just said about exegetists, I am reluctant to make any categorical statements. I will let you judge for yourself.

The Bible speaks of lights in the sky to serve as signs of the seasons. I am a simple soul: I recognize the arrival of spring by the appearance of green leaves, and the arrival of the other seasons by analogous signs. But there are people to whom lights in the sky are signs of the seasons. I call those people astronomers and I have great respect for them. As for identifying twenty-four-hour days* by looking

*In Genesis 1.14 quoted at the beginning of this chapter, the word corresponding to "festivals" in The New English Bible is *lours*, days, in the French translation of the Bible quoted by the author. The King James version also reads "days." (Translator's note)

at lights in the sky, can you do that?

I will let you judge for yourself, as I have said, but I will still plead my case. When I read that those lights placed in the sky on the fourth "day," three "days" after morning and evening are said to have been established, I have the impression that the text is referring to the making of maps of the sky. Maps to be used by the Celestials, since the sky seen from our solar system is quite different from the sky seen from another planetary system.

Were the Celestials' astronomers also astrologers? There is every reason to think so: the priests of the First Civilizations, who claimed to be the heirs of the Celestials, practiced astrology. That brings us to the "days" that the Celestials decided to identify by means of light in the sky: I believe they were the "days" I have called the "phases of a six-phase plan," the periods of 2160 years that the precession of the equinoxes marks off in the zodiac.

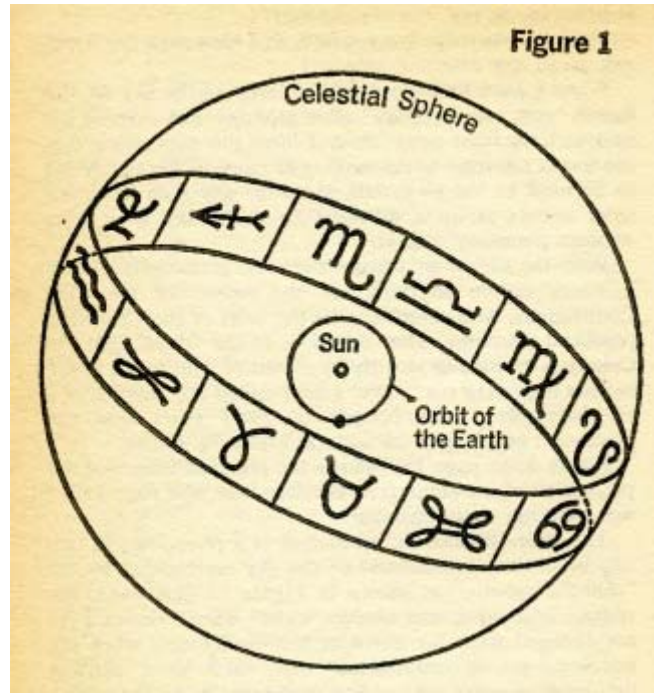
Figure 3, on page 150, shows the practical effects of the precession of the equinoxes; between here and page 150, I will describe its mechanism.

The precession of the equinoxes is a phenomenon that can be observed in a band of the sky surrounded by the "celestial sphere," as shown in Figure 1. This band, the zodiac, is divided into twelve "signs" whose names have not changed since the dawn of historical times, when the astrologer-priests maintained that they were already thousands of years old and had been revealed by the gods.

The only difference between the part of the sky included in the zodiac and the part included in the rest of the celestial sphere is that all the apparent movements of the sun, the moon and the planets are situated in the zodiac.

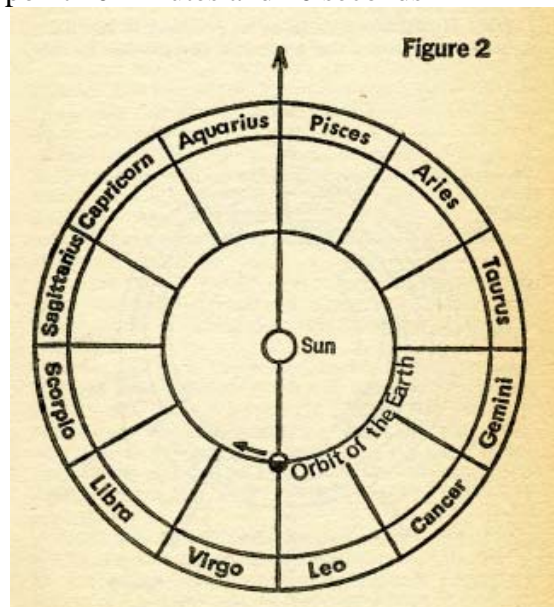
By "flattening" Figure 1, we obtain Figure 2, in which we see how, during a complete revolution of the earth around the sun, the sun appears to rise successively in each of the signs of the-zodiac, in this order: Aquarius Pisces, Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra] Scorpio, Sagittarius, Capricorn.

Since a circle has no beginning or end, a point must be chosen to mark the beginning of each year. Astronomers



have chosen the vernal equinox. The position of the sun at the time of the vernal equinox is called the vernal point. (The word "vernal" comes from the Latin ver, "springtime.")

Here a complication arises: the time between two appearances of the sun at the vernal point is 365 days, 5 hours, 48 minutes and 49.6 seconds, but the earth takes 365 days, 6 hours, 9 minutes and 9.6 seconds to revolve around the sun. The equinox therefore precedes the completion of the earth's revolution: every year, the sun appears at the vernal point 20 minutes and 20 seconds



before the earth has completed its revolution. This difference of time is the basis of the phenomenon known as the precession of the equinoxes.

Less than twenty and a half minutes is an almost infinitesimal part of a year. When

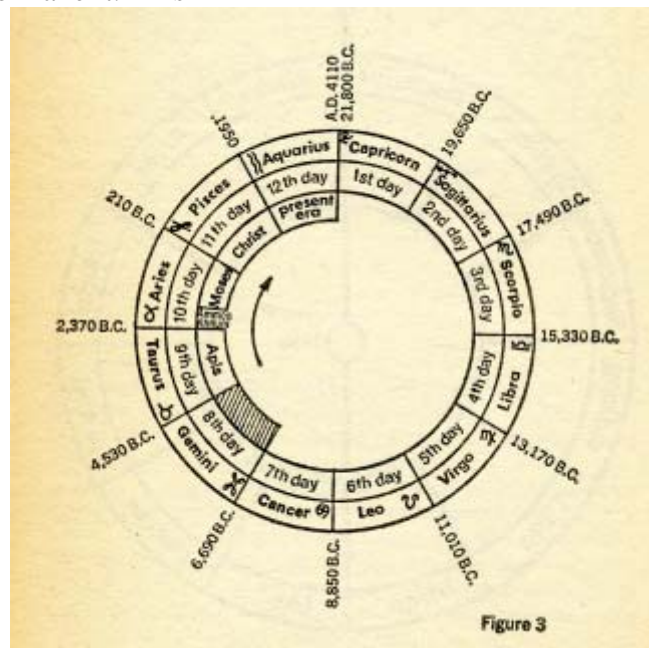
Hipparchus announced in 128 B.C. that he had discovered the precession of the equinoxes, it was a revelation to the astronomers of his time, who had been no more aware of the phenomenon than astronomers who lived before them.

What does one "notice" when one is aware of the phenomenon?

It has the effect of making the vernal point move across the zodiac. In the time of Christ, the vernal point was in Pisces; in 1950 it entered Aquarius, where it will remain until the year 4110. An examination of Figure 2 will show how the precession of the equinoxes makes the vernal point move through the signs of the zodiac in reverse order.

And that brings us to Figure 3, which shows the dates when the vernal point entered each of the signs of the zodiac, beginning with 21,800 B.C. Even if you are not sure of having understood the precession of the equinoxes, Figure 3 will enable you to see its effects and follow the rest of this chapter.

When Hipparchus announced his discovery in 128 B.C., no astronomer denied that he was the first to make it. This



is in keeping with the view held by all astronomers and historians of science today: no one before Hipparchus could have had the basic knowledge and scientific spirit necessary for determining the existence of the precession of the equinoxes.

If the "official" view is correct, and no one denies that it is, men living six or seven thousand years ago could not have discovered the precession of the equinoxes. If they had any knowledge of it, it had to have been taught to them by qualified astronomers. But consider these two points: first, it seems clear that the precession of the equinoxes was known in ancient times; second, the astronomer-priests attributed all their knowledge to the Celestials.

Let us proceed step by step.

Between 4530 and 2370 B.C., the vernal point was in Taurus. (See Figure 3.) "Taurus" is the Latin word for "bull," and this was the period when Pharaoh worshiped Apis, the sacred bull.

After 2370 B.C., when the vernal point entered Aries, or the Ram, a ram god named Khnum appeared in Egypt and became increasingly important. The vernal point was well into Aries when, in 2200 B.C., the Prince of Thebes usurped the throne, became ruler of all Egypt and imposed his own ram god, Ammon.

But the situation was not clear in Egypt during the era of Aries. Apis still had worshipers, supporters of Khnum and Ammon were in demagogic competition, and superstition flourished.

It was then that Moses appeared. He consecrated the Hebrews to a form of worship in which the ram was predominant. And, in a symbolic language that has since become the symbolic language of all those who claim adherence to the Tradition, Moses added a touch of his own: to the ram that was to be "worshiped," he added another symbol that of the calf (son of Apis the bull), to be rejected.

When the vernal point entered Pisces (the Fish), Christianity was approaching. Christianity took the fish as its symbol and, repeating Moses's procedure, added the symbol of the lamb, "son" of the Hebrew ram.

Is it possible that chance alone was responsible for the continuity of zodiacal symbolism involved in the fact that these three religions took the bull, the ram and the fish as their respective symbols when the precession of the equinoxes caused the vernal point to enter the signs of the Bull, the Ram and the Fish?

If chance is ruled out, is it possible that for six thousand years the symbolism of a single line of successive religions was drawn from the zodiac for purely aesthetic reasons?

No, the concordance is too obviously systematic. But if the bond among the successive zodiacal religions is not the result of chance, we can only conclude that four thousand years before Christianity, and four thousand years before Hipparchus, the Egyptian priests knew the precession of the equinoxes.

Yet all astronomers and historians of science agree that astronomers before Hipparchus were not equipped, mentally or technically, to discover the precession of the equinoxes.

Are we to regard this sequence of facts as proof that astronomical knowledge was given to the human race by astronauts from another planetary system?

That is the most rational explanation I have been able to find for the fact that the pharaohs, then Moses, then Christianity, adopted zodiacal symbolism. The recognized inability of Hipparchus's predecessors to discover the precession of the equinoxes, combined with the certainty that the phenomenon was known long before Hipparchus, constitutes one of the most solid pieces of presumptive evidence in favor of my hypothesis of the concrete reality of the Celestials.

An explanation "after the fact" is necessary to justify a hypothesis about the past, but it does not seem very convincing unless it can also be applied to the present and the future.

Far back in the past, much farther back than Hipparchus, among the Babylonian astrologers, for example, we find prophecies for the distant future associating the idea of a "new earthly paradise" with the symbolism of Aquarius, the Water Bearer. The vernal 106 point entered Aquarius in 1950, and it was at about that time that a rational interpretation of the Myth began to be possible.

When the Babylonian astrologers' associated the idea of a "paradise regained" with the sign of Aquarius, were they thinking of the era we entered in 1950, which astronomers had calculated in advance by means of the precession of the equinoxes? If so, those astronomer-astrologers knew the precession of the equinoxes many centuries before Hipparchus, and must therefore have been the heirs of concrete Celestials.

Were the Babylonian astrologers unaware of the precession, and were they right only by chance when they predicted that men would equal the Celestials (described by the Myth as what we would now call astronauts) during the period beginning in 1950? That is the only explanation left if the hypothesis of the reality of the Celestials is rejected. It seems to me more rational to accept the hypothesis.

During the fourth "day," when the vernal point was in Libra, did the Celestials draw up a map of the sky as seen from the earth? If we read the Biblical text on the assumption that it is coherent, that is what it says.

Did astronomers who inherited their knowledge from the Celestials find in that heritage an indication that men would be ready to become "gods" when the vernal point had entered Aquarius? I can find no other explanation for the prophecy which for thousands of years has associated Aquarius with a return to an earthy paradise.

The oldest known representation of the zodiac, the one found at Dendera, Egypt, shows the vernal point in Leo, which is where it was during the sixth "day," between 11,010 and 8850 B.C.

To avoid letting this chapter end with a question mark, I will try to sum up the situation. I have presented four main points in support of my thesis:

- 1) The priests of ancient Egypt, Judaism and Christianity have all claimed to be the heirs of a Tradition that came "from the sky."
- 2) The persistence with which the Bull-Ram-Fish

zodiacal symbolism has been maintained down to the present shows that a single Tradition is involved.

The physical transmission of knowledge that came "from the sky" was attributed by the Egyptian priests to "gods," by the Jews to "Elohim," by the Christian Tradition to "angels." (And the Byzantine theologians maintained that those "angels" had sexes.)

The concrete reality of those gods-Elohim-angels is the most rational explanation

of the knowledge of the precession of the equinoxes indicated by the zodiacal symbolism of the three related religions.

Of all the versions of the Myth, only the one contained in the Bible has been transmitted to us by a line of priests and theologians from whom, since Moses, changing as much as a single letter of the text has always been an abominable crime. It therefore seems quite likely that this text is an accurate reflection of the main features of the original Myth. And in it we find a series of stories which, though they were rejected as absurd by rationalists in the nineteenth century, when the idea of space travel was regarded as an insane dream, are now compatible with our science.

This does not mean that my interpretation of the Biblical account is historically accurate in all its details, but it does mean that there is no justification for refusing to entertain a hypothesis whose only defect is that it clashes with ideas inherited from the nineteenth century.

21

FIFTH DAY

God [the Elohim] said, "Let the waters teem with countless living creatures, and let birds fly above the earth across the vault of heaven."
Genesis 1.20

Was life in the sea and the air "created" on the fifth "day," that is, was our planet lacking in fish and birds between the Wiirm III glaciation and the end of the fourth "day"? That is untenable. The continuity of all species existing today has been established with enough certainty to exclude the possibility that there was a gap between 21,500 B.C., when the glaciation took place, and 13,170 B.C., when the vernal point marked the beginning of the fifth "day" by entering the sign of Virgo. (See Figure 3.)

But the Bible does not say that fish and birds were created on the fifth "day." It says that the Celestials made life "teem" in the sea and the air.

Are we to interpret this as meaning that, having recovered the genetic material of earthly fauna under the glaciation, and having recreated the species in the laboratories of Eden during the preceding "days," the Celestials restocked the planet, as we restock our game preserves with animals from breeding centers? That is in conformity with the Biblical text and with logic, and compatible with experimental data.

As we become closer to the Celestials than to the natives they found on earth, we are beginning to be able to understand the Biblical narrative rationally, because it is easier for us to put ourselves in the Celestials' place.

It is probable that life appeared on Venus at the same time as it did on earth; it is certain that in the present atmosphere of Venus, all life comparable to earthly life has disappeared. When man has dispersed the opaque clouds of Venus and brought sunlight back to its surface, generations of earthly biologists will enthusiastically find, identify and classify the species produced by evolution on Venus. They will compare Venusian species with analogous species evolved on earth, and this will enable them

to correlate the particular laws of each planet with a general law proposed by theoretical biology.

They will "create" species that survived the long hibernation only in their genetic material. They will experiment with the biological equilibrium. They will have vehement wrangles among themselves, each faction accusing the others of obscuring theories with absurd hypotheses and sabotaging the common enterprise by making senseless experiments. It will take thousands of years before they can settle their differences and reach the point where they are ready to make the species "teem," because it will take them several thousand years to "create," or, more exactly, to recreate a biological equilibrium comparable to the original equilibrium, by the restoration of apparently harmful species.

In the near future, it will take less time to reach Venus than it took the Puritans to reach America in the seventeenth century. Men who consider themselves old because they are retiring this year may live to see their grandsons go off to Venus with less risk than was taken by Columbus and his crew.

Yet it is obvious that the biologists' dream I have described will not come true in our time. Scientists who go to Venus will be lucky if they are given funds enough for a program covering ten years, and the figure may be closer to one year. They will have to give a strict account of their work, explain the usefulness of their research to politicians, and be hampered by periodic fund-cutting, as has already been the case with NASA.

Venus is much too close. Venus and all the other planets of our solar system will be ravaged as soon as astronauts financed by democratically elected governments have set foot on them.

Scientists who have devoted themselves to the conquest of the solar system will end their lives in anguish, like Einstein, Oppenheimer and the other dreamers who thought they were giving mankind nuclear energy and found that their gift consisted mainly of bombs.

The disinterested quest of scientists on the level of Einstein and Oppenheimer can be satisfied only far away from the earth and the solar system, at a distance great enough to cut off contact between them and their home planet.

The absurd dream of transforming men, making them gods, must be left to demiurges. Men are not gods, they are men, with human instincts, needs and joys. And now and then a monster is born among men, one of those monsters that are called "mutants" in modern jargon, were called "saints" in the jargon of the past, and are called "misfits" in ordinary conversation. Misfits with mediocre intelligence often end up in either a psychiatric ward or a prison; those with superior intelligence can hope to become distinguished scientists. Within a short time, another possibility will open up for exceptionally intelligent misfits: they will be able to leave the earth, a planet dominated by a species too highly evolved to allow monsters to impose their minority rule on a majority preoccupied with consumer goods.

In a few years, if the "bow of the covenant" of my hypothesis is found on the moon,

or in a few generations if my hypothesis is not verified, intelligent misfits will be able to leave the earth in spaceships containing thirty to forty people and set off on one-way journeys toward planetary systems where they believe they have a good chance of being received as gods by natives who have reached the metaphysical stage, but whose technology has not yet gone beyond flint tools.

In a few years, or in a few generations, "monsters" and "mutants," potential gods born of our human race, will want to leave the earth. People who are neither monsters nor mutants will be glad to see them go; they will pay for the spaceships, and good riddance!

Where did the Celestials of my hypothesis come from? From a planet that had reached the stage of development that is just around the corner for us. The Einsteins and Oppenheims of tomorrow will be sure to volunteer for a one-way expedition as soon as interstellar travel becomes possible. Man certainly does not represent the highest conceivable limit of the evolutionary process, but when evolution on a planet has produced a species equivalent to man, that species reaches a level of knowledge comparable to ours and the evolutionary process is halted: would you, or I, or anyone we know, tolerate the appearance of mutants who would dominate us as we dominate other species? Of course not. Our civilization is already perfectly equipped to eliminate any individuals with excessive genius, and when it has made interstellar travel feasible it will send them elsewhere.

I am not dreaming when I envisage a world that reaches the stage where it can formulate the Tradition in rational, scientific terms, then disgorges its mutants toward a world where they will appear as gods and "fashion" the natives, who will in turn reach the stage where they can formulate the Tradition in rational, scientific terms, then disgorge their mutants toward a world where ... This chain in which each inhabited planet becomes a link when it is sufficiently developed is what the Tradition describes, to anyone who reads it without preconceived ideas.

22 SIXTH DAY

God [the Elohim] said, "Let the earth bring forth living creatures, according to their kind: cattle, reptiles, and wild animals, all according to their kind." Genesis 1.24

The sixth "day" is clearly divided into three parts. In the first, the Celestials make the earth "bring forth" all the native species that were previously lacking. The presence of reptiles and wild animals among the species that the Celestials wanted to live on the earth brings us back to the dilemma that keeps arising: either the Bible is a jumble of legends assembled by a narrator gifted with miraculous premonitions, or it is an historical account that relates the deeds of astronauts for whom the principles of biological equilibrium were elementary knowledge.

The Utopian dream of a world without wild animals, snakes, fleas or mosquitoes is found only in the most recent parts of the Bible, written at a time when the Tradition had been contaminated by the Greek humanists who thought they knew everything.

In the Five Books of Moses, and in the Book of Job which is probably even older,

there is no trace of such nonsense: on the sixth "day" of Genesis, the Celestials make the earth bring forth harmful species along with useful ones, and Noah does not omit snakes or any other harmful creatures among the species he is told to perpetuate.

"Then God [the Elohim] said, 'Let us make man in our image and likeness to rule the fish in the sea, the birds of heaven, the cattle, all wild animals on earth, and all reptiles that crawl upon the earth.' " (Genesis 1.26)

Here we enter the second part of the sixth "day." When the biological equilibrium of the other species had been assured, the Celestials turned their attention to the conditioning of the native bipeds they would eventually place in control of the planet. It is in the first chapter of Genesis, the chapter of the flashback, that we find information about that conditioning. In the first chapter we have been told that man was initially "male and female." In the Hebrew text, the grammatical artifice is the reverse of that used for the Elohim: the gods does this or that, and man do this or that.

In the second chapter, returning to this "male and female man who do this or that," Genesis tells the story of Eve, fashioned from one of Adam's ribs.

The nineteenth century saw this story as a naive legend; to us, the primitivism of the account is less obvious.

By 30,000 B.C., men had arrived at a metaphysical concept of life, and by 22,000 B.C. they were making sculptures and cave paintings representing phalluses and vulvas. Those men were certainly aware of the role of the male in procreation.

When we think about it, that role is not at all obvious. Zoologists who speak of species in which the male helps the female to bring up the young are not deceived by their simplifying vocabulary. They speak of the "father" who feeds "his" young because they do not know animal motivations. Some males become attached to a female and take care of the young as part of the bargain; others enjoy playing with the young; others . . . When we have a hypothesis to propose about the way in which contact is established between a shark and a pilot fish, for example, or an elephant and the birds that live by picking lice off him, then we can approach the problem, still a complete enigma, of animal motivations.

One thing is certain: no animal has the intellectual agility needed for establishing a cause-and-effect relation between the pleasure he took with a female and the offspring that came out of her a long time later.

No animal, except perhaps the porpoise. But so much anthropomorphic thinking has been done with regard to porpoises, and those who study them have so often let themselves be carried away to the point of mistaking their desires for realities, that the wisest course when talking about animals in general is to say, "except the porpoise, maybe," and then add, "but of course no one really knows."

Let us therefore exclude the porpoise. And since I have insidiously suggested that insects may have been artificially conditioned by "my" Celestials, let us exclude them too. Let us limit our attention to land mammals.

Neither their observed behavior nor their intellectual capacity, as determined by a wide range of experiments, gives any reason to believe that male dogs, monkeys, cats or rats know that the offspring which suddenly appear before them one fine day are the result of a pleasant episode in the past. Do females establish a cause-and-effect relation? That would be a little easier to accept, but there is no proof of it.

And, amazingly, it seems that between 15,000 and 10,000 B.C. most human societies, if not all of them, were the same as animals in that respect. A book by Robert Graves, *The Greek Myths*, although it pushes the idea of this ignorance to its extreme limits, is highly convincing: matriarchy appears to have been the rule, a matriarchy in which the role of the male in procreation was unknown, and in which a mother-goddess was worshiped to thank her for reproducing the species by means of women.

Men in those societies seem to have had the preoccupations described in an earthy folk song: using their penises "to piss whenever they had the urge, and fuck whenever they had the chance." Serious matters, such as organization and management of the tribe, were the concern of women. Such a matriarchy is not at all contrary to human nature. "This child was born because I went to bed with his mother? Don't be silly! Where's the connection?" The human male was not made to be a father; paternal feelings are an acquired reflex.

Determining the role of the male in procreation requires a highly developed sense of observation. In 22,000 B.C. men knew that role, and therefore had such a sense of observation. Does this mean that there was a serious regression between 22,000 and 10,000 B.C.?

It is a perplexing question. The period between 22,000 and 10,000 B.C. is too well known to justify dismissing the question altogether for lack of evidence, but our knowledge of it is too fragmentary to enable us to give a clear-cut answer one way or the other.

There were certainly some societies that had reached the metaphysical stage by 22,000 B.C. This does not exclude the possibility that, at the same time, there were other societies as ignorant as gorillas on the subject of procreation. There were certainly some societies that knew nothing of procreation in 10,000 B.C., which does not exclude the existence of "metaphysical" societies at the same time. Did the latter deliberately keep their knowledge secret?

The question is all the more perplexing because it is hard to suggest an answer to it without mistaking one's desires for realities. Having given that warning, I will suggest an answer. Here it is.

The Cataclysm did not occur all at once in 21,500 B.C. For dozens of years, old people had been repeating that the weather had been warmer in their youth. Little attention was paid to them at first, but then the evidence became too clear to ignore. When I was a child, that glacier stopped in the meadow on the other side of the forest, but now it has moved into the forest. When I pointed that out to my son, he told me I was getting senile and drove a stake into the ground at the edge of the glacier to prove that it was not moving. A year later, the stake was buried under the ice.

I am lucky enough to have polite grandsons: they did not accuse my son of getting senile when he told them about the stake, and they even listen to me when I describe how in my childhood I saw plants growing on ground that is now covered with ten feet of ice.

The increasing cold and the advance of the glaciers have begun to make serious problems for us. We live by hunting, and the animals we hunt are migrating southward. If we follow them, we will be setting off into the unknown, we cannot be sure of finding flint for our tools and weapons. But if we do follow them, what will become of us?

The situation also poses metaphysical problems. Our women say that such a drastic change of climate does not happen without a reason, that our patriarchal society must have done something to offend the Superior Forces. We men, say our women, must have insulted the wind god or the god of cold. Perhaps they are right.

But I cannot help thinking that they do not really believe what they say, that they are trying to frighten us into giving them back the power they had long ago, in the days when we treated them as the sacred sex because we did not know that they needed us in order to have children. Our first generation of metaphysical priests said that pregnancy was a favor granted by the Mother-Goddess. The second generation elected a woman as their leader. After that, our religious leader was always a woman, and finally all power passed into the hands of women.

Men lived happily in that matriarchal system. It was well adapted to the instinct of the species. Unfortunately our intelligence and sense of observation were rapidly evolving. We finally noticed that no children were ever born to women who, for one reason or another, had had no sexual relations with men. While the women governed, we men reasoned.

Then the High Priestess had all the men of the tribe cruelly whipped to punish them for their laziness. The men insulted her and angrily challenged her to give birth without having relations with a man. The High Priestess was more pious than intelligent: she took up the challenge and failed to give birth.

The whole social system founded on the uselessness of men collapsed. Men lost the habit of doing everything they could to make themselves attractive to women; women began to feel pleasantly excited when a coarse, rough man deigned to notice them, and they even began trying to make themselves attractive to men. Patriarchy was inaugurated.

It was this patriarchy, inaugurated between 30,000 and 22,000 B.C. and representing a great intellectual advance, that women began contesting as the Wilrm III glaciation continued.

When the cold became so great that people were forced to take refuge in caves and learn to eat lichens, the primacy of men began to totter. They could no longer evade their responsibility: it was they who constituted the priestly caste, it was they who had stirred up the wrath of the gods.

When the Cataclysm was set off, when the ruptured ocean floors spewed out molten lava and the water of the oceans began to boil, when the earth trembled, when opaque clouds of hot vapour and dust rose into the sky and stayed there, plunging the earth into interknitting darkness, men's efforts to remain in power became futile. There was nothing for them to do but admit their guilt and failure. The priests committed suicide and a council of priestesses was formed. Matriarchy was restored.

The education of children was still the task of the priesthood, but the priesthood was now composed of women. After several generations, matriarchy was unquestioningly accepted as the natural order of things. Women controlled the distribution of food in the caves. Whenever they so desired, they summoned several men and chose the one who appealed to them most. When they gave birth, the men were sent outside to break ice and take a piece of meat out of the natural refrigerator. Men were not entitled to witness the sacred mystery of birth. In the caves, they were servants and concubines.

Then something happened. A man left his cave and quickly came back to report a miracle: it was light outside!

Since the return of sunlight was obviously a manifestation of divine benevolence, a priestess accompanied the men when they went out to explore their newly illuminated world. And during one of those expeditions a group of native bipeds were seen by a group of celestial bipeds who captured them, reassured them, fed them delicious preserved food, and were soon surrounded by a whole admiring tribe.

The Celestials were relieved. They now knew that they had not been mistaken in choosing this planet: not only was it inhabitable for them, but its life had evolved to the point of producing bipeds intelligent enough to recognize their superiority and primitive enough to regard them as gods.

Things looked promising from the Celestials' viewpoint: the native bipeds were mammals, metaphysicians, ignorant but not stupid, and perfectible, since they were already submissive and admiring.

This passage from animal ignorance to human awareness, followed by a return to animal ignorance, must have taken place over at least ten thousand years—if it actually took place at all. I think it did, but I have presented my thesis in a "novelistic" form to avoid making it appear to be anything other than what it is: a thesis that is neither proved nor disproved by any certain evidence. It is a piece of plausible "historical fiction."

"And so the Lord God [the "Lord" of the Elohim] put the man into a trance, and while he slept, he took one of his ribs and closed the flesh over the place. The Lord God then built up the rib, which he had taken out of the man, into a woman. He brought her to the man, and the man said: 'Now this, at last—bone from my bones, flesh from my flesh!—this shall be called woman, for from man was this taken.' " (Genesis 1.21-23.)

The Hebrew word for "ground" is adamah; the biped "brought forth" from the

adamah, and destined to rule over everything that lived on the adamah, was an adam, translated as "man" in the passage quoted above. The adam (there are no capital letters in Hebrew) was initially "male and female." After the intervention of the "Lord" of the Celestials, the adam, who till now had been ignorant of the role of the male in procreation, was astonished to learn that a woman was "flesh from his flesh." And because she had been taken from man (ish,) he decided to call her woman (ishshah), ish being the specific word for "man," while adam means "man" in the more general sense of "person." Latin translators of the Bible, who rendered adam as homo and ish as vir, invented a Latin neologism for ishshah: virago. In Voltaire's time, every man with a little education knew that.

Let us again try to find the most rational meaning of the text, ignoring the flourishes added by exegesists. Are we to read it as saying that the "Lord" of the Celestials amazed man by revealing, then demonstrating, that woman was not an incarnation of the Mother-Goddess, that she came from man's "flesh and bone"? Is the word "bone" an obvious allusion? (Linguists have established the existence in Sumerian of a pun on "rib" and "to give life.")

If we accept the idea that the text has the most direct and rational meaning, the rest of the story becomes clear: man says, in effect, "Woman is no longer a sacred priestess, since I now know that she came from my male bone. She will be called a 'manness' because she came from a man." The role of the male in procreation was now known. "That is why a man leaves his father and mother and is united to his wife, and the two become one flesh." (Genesis 1.24) This is the first place in the Bible where the notion of "father and mother" is substituted for "male and female," and it marks the first appearance of the notion that a man and a woman are fused in the child that is born of their flesh.

In Voltaire's time, no one could have proposed such a rational interpretation because it was generally accepted that man had been created "in full bloom" six thousand years ago.

In Voltaire's time, Buffon had serious difficulties with the Church because he maintained that the earth was much older than it was said to be, that is beginning might go back as far as seventy-four thousand years ago.

But if things happened as I have suggested in this chapter, the rest of the Biblical story becomes clear and coherent. On the sixth "day," between 11,000 and 9,000 B.C., the Celestial finally completed their overall plan. On a planet where biological equilibrium had been restored to the plant and animal life, they were living like gods in their Eden, which was, in the simplest sense of the term, an earthly paradise. Now that the essential part of the plan had been carried out, they could turn their attention to the finishing touches. The rest of the planet would gradually become a paradise, and that paradise would then be turned over to the natives, who were making rapid progress.

23
ANALYSIS OF A GOD

Ten to twelve thousand years . . . That was the time that, according to my hypothesis, went by between the arrival of the Celestials and the completion of their installation at the end of the sixth "day." At first sight, such a long period might seem to make the hypothesis much less plausible.

At first sight, yes. But when you think about it, the time of all great undertakings is measured in thousands of years, whether it be the selective breeding of a domestic animal or the religions derived from the Tradition, whose object is to make man pass from the stage of a primitive hunter to that of a breeder, then to that of a biologist aware of the need for a great plan extending over thousands of years.

The earthly paradise was not designed for me. The Celestials designed and built it for themselves. They were quite willing to make men happy, but they felt no more urgency about it than we would feel about making monkeys happy if we were in an analogous situation.

Let us again try to put ourselves in the place of the Celestials; it is the only way we can have any chance of understanding the decisions that the Bible attributes to them.

It is about 21,000 B.C. The spacecraft Phobos has come "from the sky" and is about to be placed in orbit around Mars. You and I are aboard it. Our ancestors were born on Theos, but we were born inside Phobos during the journey, and so were our parents. We have always lived in artificial light and an unvarying climate. Time means nothing to us. We have eternity before us. We have no ambitions. What ambitions could we have? It was not out of ambition that our great-grandparents planned and executed Operation Phobos; it was because they had foreseen the future of the civilization of Phobos.

Several centuries before our great-grandparents were born, communication had already been established with other inhabited planetary systems. From one system to another, the inhabitants had compared scientific results, classified them into laws, established a General Law, known as the Unitary Equation. There were almost no unanswered questions left. Our great-grandparents knew the origin of the universe; they knew how and why life had appeared, how and why it had evolved.

The inhabitants of different planetary systems exchanged televised photographs of their latest technical achievements, like housewives trying to impress each other with the ways in which they had improved their homes. They had long since gone beyond the dreary stage of the "consumer society" in which wealth enables some to enjoy material goods that others cannot afford. On Theos, as on every other planet with a fully developed technological civilization, material goods are taken for granted.

"The gods have no destiny," wrote Plato. As soon as we think about it, it is obvious. Considering everything that a god knows, the idea of "succeeding in life" is meaningless. There is nothing for him to acquire; the goal of his life is to preserve and transmit to his children a spiritual and scientific heritage that will enable them to keep

their minds occupied throughout their lives. Experience shows that the best way of never having your mind free enough to harbor bad thoughts is to concentrate only on tasks that you can be sure of never finishing. And experience shows that the most satisfying endless tasks are those of disinterested scientific research, great undertakings spread over hundreds of even thousands of years.

A man who is neither a god nor a protogod, nor even a pregod, is chilled by the thought of such a life. If it were forced on him, he would commit suicide.

We gods, of course, would never even consider suicide. When our grandparents died in Phobos during the long interstellar journey, we ate them. We did not eat them like primitives who need to drink Grandfather's blood and eat his liver, to be aware of eating Grandfather. Nor did we eat and drink them symbolically, in the form of bread and wine, like primitives who are advanced enough to be satisfied with symbols, but not advanced enough to do without them.

We are scientists, descended from a long line of scientists whose initially favorable genetic material was purified over several generations. We are descended from generations of ancestors who submitted to scientific biological conditioning, and whose genes, known and stabilized, have less than one chance in ten million of being degenerated by mutation. Like our ancestors, we are able to detect children whose genes show the slightest unfavorable deviation, and we eliminate them by eugenic euthanasia. Our lineage is genetically pure enough to make marriages between brothers and sisters not only possible but necessary for the maintenance of that purity. We are scientists, produced by a civilization which has reached that supreme point where its members experiment on themselves at the genetic level.

Since we are scientists, we have no prejudices. When we ate our grandparents, we did it with the equanimity of a scientist who knows that he is eating fertilizer when he enjoys a salad, that he is drinking filtered sewage when he quenches his thirst with water, that he is smelling denatured dung when he sniffs a rose. In the enclosed space of our spherical spacecraft, where we, our parents and our children have always lived, what else could we drink but our purified urine and sweat? What protein could we eat but the protein that was in the spacecraft at the beginning of the journey?

The inhabitants of a spacecraft have a fixed amount of matter at their disposal. The same is true of the inhabitants of a planet. The cells of any living creature are made of molecules that have been circulating for countless millions of years and will continue to circulate after the death of the body in which they have been temporarily brought together. Life is eternal, as all gods know.

To anyone who knows he is eternal, the word "ambition" loses all meaning. Without the drug of ambition, the only joy in living is found in an accord with the rhythm of nature, the slowest of all rhythms. An eternal god's joy in living would be like that of an animal, if animals acted on nature rather than submitting to it—or if gods could forget that in each of their reincarnations they are mortal.

The planetary system where we have just arrived in our spacecraft Phobos is exactly as our astrophysicists described it from a distance. From now on it will be our

system. We will call it the solar system, since its star will be our sun. We will find naturally evolved life here, and we will affect the course of that natural evolution by deliberate intervention. We have unlimited time; we will carry out our plans for improvement over dozens, in some cases even hundreds of our own generations. It is probable that we will find native bipeds with the ability to speak and minds open to logic, since planetary systems, though not necessarily as uniform as salt crystals, are similar enough to justify the assumption that intelligent life will evolve in any inhabitable system, and since our biologists have established that, to lodge an intelligence open to logic, our physical configuration is by far the most convenient and statistically the most probable.

Soon after we placed our spacecraft in orbit around Mars, we discovered a complication: the solar system is going through a glaciation that has blocked life on Venus and Earth. As a result, we will have to settle on Mars for a few generations, though Earth is still the planet where we will make our final installation.

We will have to begin by making a base on the moon, after expanding it by releasing its volcanic energy to slow its rotation, so that it will always present the same side to Earth. Our equipment will be set up in a lunar crater, and it must always be facing Earth. On Earth, the first thing to be done is to bring sunlight back to its surface.

First we will precipitate the dust in suspension in the clouds. We will have to act cautiously. Next we will precipitate the water in the clouds, still acting cautiously, spreading the process over several centuries to avoid turning the planet into an immense bog where all surviving life would perish. The present situation is disastrous: the oceans are far below their normal level, with their missing water either frozen in glaciers or suspended in clouds.

If all goes well, when we have brought sunlight back to the planet, we will discover some of the native bipeds that scientists on Theos predicted we would find. Those natives must have evolved to the point where they were capable of surviving. We will take a few specimens of them and our biologists and psychologists will test them to determine whether they are suitable material for our plan to develop a new breed of gods.

In any case, the natives will provide us with labor for the construction of the wall that will enclose our Eden. We can begin growing food there even before we have brought rainfall back to normal on the rest of the planet, because we will be living in our own controlled climate.

We have had long discussions about how we ought to proceed. Some of us advocated making the water in the clouds fall more slowly, so that the rivers would begin flowing while the seas were still rising; others (whose opinion was finally adopted) maintained that this second phase should not last longer than two thousand years, and that at the beginning of the third phase we should channel the water fallen from the clouds, to make dry land reappear. Once that has happened, our botanists will take over: during the last part of the third phase, they will cover the planet with suitable plant life. It will be native plant life, of course, recovered from the genetic material that survived the glaciation and its disastrous effects.

In the fourth phase of our six-phase overall plan, our astronomers will draw up maps of the sky as it appears from the earth, which has now become our point of reference, while our botanists continue to adjust the equilibrium of plant life on the planet. A fixed observatory on the moon will be essential for the astronomers.

The biologists will probably prefer to observe their domain from Liliths, satellites with lower orbits. Meanwhile the zoologists will be restoring the native animal species, being careful not to perfect one to the point of placing the others ' in danger. The biological equilibrium that reigned on earth before the glaciation took a billion years to develop; our zoologists will have only a few thousand years to restore it.

We are now living in Eden, in a climate made ideal by our meteorologists. We have the basic stock of all the native plant and animal species, and in the six thousand years since our arrival we have been reconstituting their genetic material.

The glaciation did not last long enough to make all life disappear, but some of the species that survived better than others were not the most numerous in the original biological equilibrium. A plant, mammal or insect may have totally disappeared in one region, survived intact in another, mutated in a third, proliferated in a small area ...

We must make investigations and experiments everywhere, and coordinate our findings with biological theory. We have theoretically determined the characteristics of certain species of which we have found no trace, but whose existence was required by the original biological equilibrium as our observations have led us to imagine it.

It is all fascinating; the centuries slip past unnoticed, and we barely notice the millennia, to quote a remark made the other day by a god who has a strange and rather disquieting taste for the poetry of words, whereas a true scientist can only be a poet of ideas.

The fourth phase is coming to an end. Our astronomers have discovered the major cycle of the earth: the precession of the equinoxes, completed once every 25,920 years. They have divided the cycle into twelve parts, and with their taste for the poetry of ideas they have given each part a symbolic name. They have placed the first period, the first "day," under the sign of the gamboling goat (Capricorn.) The second, the "day" when the solar system was taken in hand by astronauts from Theos, is symbolized by Sagittarius, the Archer, to indicate that the civilization we brought from Theos is part of a chain whose first link took the bow as its emblem.

Our Tradition requires us to preserve the symbolism of the archer and the bow contained in the name of the star near the center of the galaxy, the star in whose planetary system the first civilization of the galaxy was born. Our Tradition is called the "Tradition of the Bow of the Covenant" because it stipulates that as soon as civilization has become sufficiently advanced in one planetary system, it must propagate itself in other systems of the galaxy, always moving outward from the center (the constellation of Sagittarius) to continue building the chain of advanced planetary systems.

During the fourth "day," while the astronomers were mapping the sky, the

biologists continued to make progress, but without spectacular accomplishments. They worked toward a recreation of the equilibrium of animal species, starting from "resuscitated" couples developed in the laboratories of Eden. They began with birds and aquatic animals, since the land animals are not yet ready. They still have doubts regarding certain species. Were the marsupials, notably the kangaroo, still alive at the time of the Cataclysm, or had they been extinct for thousands of years? Should preference be given to bovines, buffaloes or bison? Countless questions are still unanswered.

Our computers have proven to be incapable of providing us with a detailed description of each of the seventy thousand species and subspecies whose existence we have established theoretically. Since that failure, our biologists have given up the idea of restoring the status quo exactly as it was before the Cataclysm. We will have to improvise a little, but we would like to remain as close to the original equilibrium as possible.

Among the insects, for example, we are releasing conditioned ants and bees for the purpose of "keeping order" in anarchic ant and bee societies. As for the mammals, we have had the basic stock of all the species since the second phase of the plan, but we will not begin systematically repopulating the planet with mammals until the sixth "day." The return of birds and aquatic life will take place during the fifth phase.

We have now reached the sixth phase. Things are going well. Our biologists are delighted with their success: each time they release a few males and females of a species that had survived the Cataclysm only in the form of the genetic material contained in frozen corpses, they multiply and have little difficulty in regaining their original place in nature. We have even "created" cells "made to order" on the basis of fossils. The whole process has taken us thousands of years, but our time is our own.

The sixth "day" is ending. There are still thirty of us. In none of us has the genetic material deteriorated. We are truly gods: inalterable, invulnerable to mutation.

We are physically similar to the native bipeds of the planet. Recent experiments have shown that complete chromosome identity can easily be obtained, and that an extreme genotype can be hereditarily fixed. In practice, this means that it is possible to make human females mutate and become capable of being impregnated by gods.

We have already subjected several human females to artificial insemination, but it is still too early to draw any definite conclusions about the demigods produced in this way. All we can say is that the prospects seem fairly good: the demigods show greater intelligence than men, though we do not yet know whether that intelligence can be transmitted hereditarily. The mutation is obviously favorable to intelligence, but we cannot rule out the possibility that it may have other effects less favorable, or perhaps even harmful, to either the mutants or their descendants. We will have to observe at least ten generations before we can know whether our interbreeding with the natives will produce gods like ourselves or beings not far removed from their human ancestors.

We are gods. We have all the resources of the solar system at our disposal. We do not have to account for our work to anyone else. We can continue an experimental

project as long as we please, even if it has shown no encouraging results for more than a thousand years. I recently pointed that out to the members of the Academy of Science on Theos, in answer to a message in which they expressed surprise at the fact that we had still not determined whether interbreeding between ourselves and the natives could produce a line of genetically stable offspring.

When our distant ancestors left Theos, they promised that they and their descendants would send back periodic reports, and we have respected that promise. Although our messages travel at the speed of light, it takes them several centuries to arrive. That excludes any genuine correspondence, of course, and limits our relations to communiqués.

We are gods, genetically identical to the inhabitants of Theos, since Theos is our planet of origin. It saddens us to note the intellectual decline of the Theosites who have stayed on their home planet, who have not become gods, preferring the comforts of civilization to the hazardous expeditions that are the lot of gods.

Theos is in the grip of decadence. We are obliged to send increasingly simplified reports, to avoid receiving childish questions in reply, questions that an earthling would almost be capable of answering. And we are not alone in this: members of other expeditions, whose ancestors left Theos at the same time as ours, and who have reached about the same point in their colonization of other planetary systems, have also become aware of the decadence into which Theos is falling.

The members of those other expeditions are also gods, and it is only with them that we are able to maintain communications of any value. Such is the law of the universe: death comes to everything, whether it be a flea or a planetary system; only life is eternal.

In this sixth "day," we are concentrating our attention on the native bipeds. Our experiments with them are fascinating, yet also a little depressing. We must remind ourselves that our own ancestors were like these natives tens of thousands of years ago, when the astronaut gods came to Theos. The natives like to serve as subjects for our research. We have succeeded very well in conditioning them.

They know that those on whom we perform vivisection experiments are given special treatment when they come out of the anaesthesia. Many of them come to us and ask to be put into what they call a "trance," so that they will be pampered afterward.

Outside of Eden, the natives live in their natural habitat. They are part of the biological equilibrium that we have tried so hard to respect. They kill specimens of certain species which in turn kill specimens of the human species. We are careful to let the natives living outside of Eden develop at their own pace, with no interference on our part. They seem to be doing well. They live in communities that have established relations among themselves. One community invented a "mechanism," the spear thrower, and for centuries we have been watching the spread of that invention to other communities. The development of the natives is fascinating to observe. Having reached the definitive stage of evolution, we feel as if we were fostering our own forefathers when we give a helping hand to selected specimens of these bipeds who

are still at such a primitive stage.

We limit our efforts to improve the species to the group of natives who live in Eden. We prevent unsuitable specimens from reproducing, and favor the reproduction of the others. Our ultimate goal is to develop a stabilized stock capable of engendering gods. We feel safe in predicting that within several thousand years the earth will be producing its own gods.

Our experimental subjects living in Eden have evolved their own metaphysical concept of life, and so far we have; done nothing to make them question it. We expect a certain amount of difficulty when we feel they have reached the stage where we can begin preparing them to accept the concept of the immortality of life, of the ineluctable eternity of molecules. They are not yet ready for that. Our cellular immortality is beyond their understanding.

When, for example, I say "I," the natives do not understand that I may be referring to the I who came to this planet thousands of years ago, the I who is speaking to them today, or the I who will study their descendants centuries from now. They cannot grasp the fact that since our marriages are between brothers and sisters genetically fixed to the point of being biologically twins, they produce physically identical sons and daughters who will in turn marry each other, and so on indefinitely. Knowing that we are immortal, the natives think we never die!
We are thirty and we are One; we create and are created.

We have not succeeded in making the natives understand: that. What children they are! They cannot understand that we are the same fifteen couples who arrived on this planet because our genetic purity enables us to reproduce , ourselves without alteration for thousands of years.

Death is only a link in the chain of immortality. An incident in an endless journey.

How time passes! Soon I will die ... I regret it a little; I would like to live long enough to see the end of this sixth "day," to discover the extraordinary life that awaits us in ! the seventh "day," when we will begin putting the finishing touches on the great project whose essential parts will soon be completed. We will bring man to his final stage of development. We will prepare him to engender gods on our level within a few thousand years. We will create a more rational biological equilibrium on the planet, eliminating absurd species among both predators and prey. We will create more rational climates, maintaining just enough water in evaporation to make the humidity pleasant, and producing warm updrafts, "mountains of air," to move clouds to regions that need rain. Little by little, we will extend the benefits of Eden to the entire planet. But I will soon die . . .

What does it matter? My cells will see all that.

The promise that man will some day be able to equal the gods is stated explicitly in the Tradition on which Judaism and Christianity are founded.

That promise seemed so irrational from a nineteenth-century viewpoint that it did not survive the triumphant anticlericalism of the nineteenth century. For fear of ridicule, medieval minds became accustomed to playing down everything in the Judaeo-Christian Tradition that contradicts the materialistic certainties of humanism. A hundred years of playing down were enough to make most people forget what "any man with a little education" knew in Voltaire's eighteenth century.

I am a man of the Middle Ages. I have been noting a resurrection of medievalism that is sweeping away the last miasmas of the nineteenth century, whose smug mind delighted in certainties. The nineteenth century was glutted with certainties.

In the nineteenth century, reputable scientists demonstrated that no heavier-than-air craft could ever fly. When, at the end of the century, a phonograph was presented to the French National Institute, the distinguished scientists decided that the man who presented it was a trickster using ventriloquism. In 1922, when the nineteenth century was still dying a lingering death, the French Academy of Sciences refused to listen to a charlatan named Albeit Einstein. And today . . .

In the face of such haughty certainties, what else could the Tradition do but remain silent? That was what it did. What "any man with a little education" had known became "esoteric," that is, reserved for "initiates," not because those who maintained the Tradition enjoyed playing with the paraphernalia of secret societies, but simply because people whose minds had been deformed by the nineteenth century refused to listen to them.

It requires no "esoteric" or "secret" knowledge, no "initiation," to read in the New Testament, John 10.34-35, that Jesus referred to the gods of the Old Testament, or in Genesis 6.1-4 that the sons of the Elohim had children by the daughters of men. In the fourteenth century, the illustrious theologian Meister Eckhart professed that men would become gods because that was what Christ had promised them. In 1960, Alexandre Safran, an eminent rabbi of Geneva, Switzerland, published *La Kabale*, a book: in which he states that for the Tradition it is certain that "man will renew the acts related at the beginning of Genesis," that is, he will equal the Elohim to whom those acts are attributed in the Bible.

I am acquainted with several highly educated men who did not know all that. They are no longer quite the same, now that they know.

The "acts related at the beginning of Genesis," whose "renewal," according to the Tradition, will attest to man's having equalled the gods, indicate that the "spirit of the Elohim" hovered above the clouds beneath which the earth I was plunged in darkness. The "spirit of man" has recently sent probes to transmit information about Venus, which is also wrapped in clouds. Since those probes began, "my" ; Celestials have become more plausible.

We are now pregods, as the Zinjanthropus was a preman. It is time for us to become accustomed to our new 133 condition, though without taking ourselves too seriously. To understand the gods, it is now better for us to put ourselves in their place, rather than trying to imagine them I from the viewpoint of Paleolithic men who had

no conception of what was happening to them when they encountered astronauts from another planet.

The Bible describes the events, as men were capable of comprehending them, with the terseness of a table of contents. Eleven short chapters, the first eleven chapters of Genesis: that is all we find in the Bible concerning the arrival and departure of the gods and the six "days"—more than twelve thousand years—of their activities on earth.

To see those events from the viewpoint of men, we can read other versions of the common Myth: the Sanskrit Mahabharata, the Babylonian Gilgamesh Epic, the Am-erindian Popol Vuh, various Chinese and Tibetan texts, ! and others. The descriptions of the gods that they contain are irrational, because these versions of the Myth present \ the activities of astronauts explained by primitives who [could no more understand what they were explaining than I a dog can understand what happens to him in the Pavlov Institute.

I would like to relate a parable. Its setting is the Pavlov Institute in Moscow, and its protagonists are two dogs: Samo, an old mastiff who has been at the Institute a long j time, and Var, a young poodle who has just arrived and feels intimidated by his new surroundings. "Don't worry," old Samo says to young Var, "you'll like it here. We're used for experiments in magic. As soon as you salivate, a little green light goes on and a conditioned human being brings you something to eat. It's a miracle, and there can't ; be any doubt about it because it happens every time." The outlook illustrated in this parable is found in all sacred books that add a human commentary to the story of the astronauts' activities concisely presented in the Bible.

I have tried the most highly regarded translations of sacred books other than the Bible: I have never been able to arrive at a rational concept of the gods by a process of step-by-step reasoning comparable to the process that has led me to the Elohim, starting from the description of them in Genesis.

The Bible is the only sacred book that enables us to put ourselves in the Celestials' place, to sweep away the ideas expressed by Samo to Var in the Pavlov Institute, and to substitute the simple logic of a laboratory researcher for the magic and miracles described by primitives with a penchant for metaphysical explanations.

I must admit that I have met many people who prefer an explanation by magic and miracle to the rational explanation I am proposing. I cannot really blame them. It is much more reassuring to believe that the gods described in myths are imaginary than it is to accept the more rational hypothesis of their reality.

If the Celestials actually existed, we are closer to them than we are to the men of the Paleolithic . . . and we must continue to put ourselves in their place.

Let us pick up the story where we left it: in the sixth "day," the sixth phase of the overall plan. Slowly, lovingly, each generation has accomplished its task with the patience of cathedral builders. The Celestials have become naturalized earthlings twelve thousand years after the arrival of their ancestors. The earth is their paradise. They live in Eden, a vast enclosed park with laboratories surrounded by greenery.

They are served by a selected group of natives who venerate them as gods.

On the rest of the planet, the flora and fauna are flourishing in a satisfactory biological equilibrium, now that nearly all of the native species, reconstituted from their chromosomes and stabilized in Eden, have been released in their natural habitat.

The Celestials are happy. Their lineage has proven its inalterability, now that twelve thousand years have gone by with nothing more serious than a few minor mutations, easily detected in infancy and eliminated by gentle euthanasia. Psychic stability, even more important than physical stability, has presented no problems through the millennia: the Celestials has always been one.

After this sixth "day," when the basic part of the plan has been carried out, the Celestials will concentrate their attention for several thousand years on a new branch of zoology: anthropology, the specialized study of the animal known as man. It promises to be fascinating. That native species, which, except for the small group living in Eden, has still not gone beyond the stage of making flint tools, will be slowly improved to the point of equaling the Celestials. Within a few thousand years, expeditions composed of improved earthlings will set off to spread civilization to other regions of the galaxy!

Why should the gods be under an obligation to spread civilization? I do not know. But that obligation can be discerned in the Hebrew Tradition as well as in other sacred books, and I therefore believe its existence can be regarded as probable. Let us not try to understand above our condition; let us simply note that although gods have no destiny, they do seem to have moral imperatives.

It is obvious that the intervention of biologists motivated by the intentions I have attributed to them would explain many of the anomalies observed in the evolution of earthly species. In this chapter I have let my imagination extend to what is suggested by sacred books other than the Bible, but I have kept my arguments within the narrow limits set by the Bible. Nothing I have proposed is contradicted by the only account transmitted by a people forbidden to change a single letter of the text. But we must avoid regarding as probable anything that is merely possible. The possible is only what is not contradicted by any known fact.

25

THE PROBLEMS OF EXPERIMENTATION

Experimenting on an animal species requires a breed whose "family tree" is known and free of undesirable mixtures for at least fifty generations, preferably a hundred. Modern biologists have such breeds of mice.

To produce a human breed of equivalent purity, men and women would have to be bred according to the principles of eugenics, then their children would have to be bred according to the same principles, and so on for at least two hundred generations, since a man's genetic heritage is more complex than that of a mouse. The breeding would have to take place over at least four thousand years, preferably five or six thousand.

When such a stabilized human breed had been produced, experimentation could

finally begin. A number of human couples, let us say thirty, could be isolated, with fifteen serving as a control group while the other fifteen were subjected to experimentation by interbreeding, chemistry or vivisection.

If the Biblical text is read as I propose, it describes such experimentation: the selected group of human beings that appeared during the first and second "days" were kept in Eden and treated with the respect that biologists have for their experimental animals. Defective specimens were eliminated, reproduction was controlled. After the thousands of years necessary for producing a pure breed, in the sense that biologists give to the word "pure," the Lord of the Celestials began the experimentation on the sixth "day." It included vivisection and alteration of chromosomes.

If (against all possibility) our biologists were to "resuscitate" a race of intelligent bipeds from genetic material found on Venus, it would be out of the question for them to experiment on those bipeds as they would on lower animals. But if the members of the human scientific expedition found intelligent bipeds on a planet a thousand light-years away from our solar system, they would experiment on them as we do on monkeys. To the Celestials of the Myth, our ancestors were monkeys. The Celestials could take thousands of years to stabilize a breed. The Biblical account is coherent, but only if it is taken as a whole: the Celestials, cut off from their home planet, were carrying out a plan that covered thousands of years.

Let me take an example from *L'Origine des especes*, by Emile Guyenot: "Karpechenko succeeded in hybridizing the radish (*Raphanus sativus*) and the cabbage (*Brassica oleracea*), which belong to different genera. Each species has 18 chromosomes, but they are not homologous. The hybrids also had 18 chromosomes: 9 *Raphanus* and 9 *Brassica*. They were vigorous but sterile. One day an accident produced tetraploid cells possessing 9 + 9 *Raphanus* chromosomes and 9 + 9 *Brassica* chromosomes. Seeds were formed and there was the genesis of a new species incapable of reproducing with the two parent species."

When Emile Guyenot, a recognized authority in biology, writes that "there was the genesis of a new species," there is no reason to believe that the Biblical resonance of his conclusion is a deliberate parody. He is explaining the creation of a plant by Karpechenko; the Biblical text explains the creation of plant life by the Elohim,

Is it possible to do with two animal species what Karpechenko did with the cabbage and the radish? Yes, if both species have the same number of chromosomes—and if we wait until biology has made enough progress to bring about mutations on the genetic level in animals. But the principle has already been established.

With our present knowledge, it would be premature to consider causing controlled mutations in the human species, producing truck drivers whose attention would never wander from the road, or mathematicians who would never let personal problems distract them from their work. But it is already perfectly conceivable in theory.

This kind of biology, theoretically conceivable for the future, is described in the Bible and attributed to the Celestials.

The impression given by the Tradition, when it is read with the conviction that chance alone is inadequate to explain what it contains, is that the Celestials intended to create a group of artificially mutated human beings and turn the planet over to them with the responsibility of assuring the "bovine" happiness of the rest of the human race, who would be left to develop at their own pace, without even being taught how to make such simple devices as the bow and arrow before they had invented them for themselves.

Would the human race have developed more harmoniously, would most of us now be living like Rousseau's "noble savages," if it had not been for the accident that made the Celestials decide to leave, abandoning their small group of experimental subjects while they were still unprepared to take over responsibility for the planet? It is possible to think so without feeling too lonely: Plato, who interpreted the thoughts of the gods, did not disavow such an idea; the medieval theologians, who interpreted the acts of the angels, did not disavow it either; and we find echoes of it even in Cournot (1801-1877), in the midst of the nineteenth century's overbearing rationalism.

And Karl Marx, a man of the nineteenth century, was right when he said that the very principle of sociology is Utopian, since man cannot be both the observing sociologist and the observed subject. Sociology and, with greater reason, any attempt to modify human nature are foolish enterprises on the assumption that this is a humanistic world, that is, a world in which civilization was born of man, developed by man, and made for man. Sociology can assume an active role only if the population 139 of the world is divided into gods (experimenting sociologists) and experimental subjects. The sixth "day" of the Bible is the "day" of sociology.

It is also the "day" of the accident which, as the text shows us, resulted in the departure of the Celestials. Was it the human subjects in Eden, guilty of original sin, who were responsible, as sociological theologians teach? Or must responsibility for such a failure always be with those in charge, in this case the Celestials?

Read from the human viewpoint, the viewpoint of Christianity, the Bible places the responsibility on man. Read from the viewpoint of the gods, it is they who must bear the responsibility, at least for the initial failure. But before we philosophize, let us return to known facts.

Experimenting on animals requires specimens of a pure breed divided into two groups: a control group and the group that will be subjected to experimentation. If females given thalidomide produce offspring with birth defects, whereas the offspring of females in the control group are normal, diet having been the same in both cases, the adverse effects of thalidomide are clearly established. If rats or monkeys are used, there is no problem. But—and this is something many people like to forget—it is when there are no "almost human" experimental subjects available that things like the thalidomide disaster occur.

But experimenting on men, even when the experimenters are Celestials to whom men are no more "sacred" than monkeys are to us, poses special problems: men speak.

With monkeys, the experimental subjects can be kept in cages next to those of the control group and the experiments will proceed without incident. There will be no

exchange of information and opinions from cage to cage. The monkeys will learn nothing that would disqualify them as valid subjects, even if the goal of the experimentation is to produce a psychic mutation.

In experimentation on men, the control group and the experimental subjects must obviously be kept apart. But if one group is kept under lock and key, whether it be the control group or the experimental subjects, the traumatic effects of imprisonment will make the results of the experimentation invalid.

Is this an insuperable difficulty? No, the experimenters can overcome it by conditioning their subjects, taking advantage of the human ability to internalize prohibitions. The principle of a monastery is as effective as that of a prison, and it has no traumatic effects if it is properly applied. And it is the principle described in Genesis. The "gardeners" of Eden, who constituted the control group, had permission to "eat from any tree in the garden" except one: they were forbidden to eat from "the tree of the knowledge of good and evil," from which we may assume that only the mutants were allowed to "eat."

Before we go any further, we must understand how the Hebrew word translated as "eat" may be used in the original text.

As an aid to understanding the Hebrew of the Bible, there are special dictionaries in which each word used in the text is followed by an indication of all the other passages where it occurs. The Hebrew word usually translated as "to eat" often occurs in contexts where it can have only that meaning, but it also occurs in contexts where its meaning is obviously different. In Ezekiel, for example, a voice orders Ezekiel to "eat" a scroll, then go and teach what he has learned by "eating."

That brings us to the third chapter of Genesis, where a tempter induces Eve to eat the fruit of the tree of the knowledge of good and evil. When she does so, her eyes and Adam's are opened, and the Lord of the Celestials is obliged to make them leave Eden, where, strange as it may seem, he wants no human beings with a knowledge of good and evil.

This is the favorite chapter of theologians, moralists, and people who, never having read the Bible, know by hearsay that God punished man for eating an apple.

26

THE TREE OF THE KNOWLEDGE OF GOOD AND EVIL

The serpent said, "Of course you will not die. God knows that as soon as you eat it, your eyes will be opened and you will be like gods knowing both good and evil."
Genesis 3.4-5

Yes, translators and exegesisists do what they can, but the Hebrew text is there: to incite the woman to "eat," the serpent assures her that after having "eaten," human beings will be "like Elohim," which is very annoying for exegesisists and translators, when you think about it a little. If the word "Elohim" designated an immaterial God, we would have become God (a sacrilegious idea) and immaterial (a silly idea). If,

however, "Elohim" means "the Celestials," the text itself supports the interpretation I propose, both in the passage quoted above and in the twenty-second verse of the same chapter, where the Lord of the Celestials implicitly acknowledges that the serpent told the truth and that he, the Lord of the Celestials, lied: "He said, 'The man has become like one of us, knowing good and evil.'"

Why is such an obvious fact so seldom recognized? Because believers prefer any interpretation at all, even one that is flagrantly idiotic, to the idea that their God is a liar, and because unbelievers are satisfied to point out what they regard as the flagrant idiocy of a text that is nothing but a mass of superstitious nonsense.

Books which try to show that the Bible is a historical narrative begin their demonstration with Chapter 12 of Genesis, where Abraham leaves his native city of Ur. From Chapter 12 onward, the text seems reassuring: the protagonists are men, and the Celestials are referred to only as a primitive belief. Books which try to show that the Bible is a historical narrative from Chapter 12 onward gingerly pass over the first eleven chapters, those in which man is only a plaything in the hands of Elohim living on earth.

As far as I, my publishers and my friends know, I am the first to try to show that the first eleven chapters of Genesis are not only historically plausible, but that they also state facts whose historical reality could not have been affirmed by anyone fifty years ago.

Why am I the first? Because someone has to be first, for one thing, and, for another, because the rational plausibility that I am proposing did not become apparent until little more than a decade ago, when for the first time a man escaped from the force of the earth's gravity, thus taking a great step toward "renewing the acts related at the beginning of Genesis."

27

THE SIXTH DAY

I have learned from experience that nothing can shake the certainty of people who need to believe in the irrationality of the Bible: some need to nourish their faith in the supernatural, others need to regard the Bible as a product of primitive superstition. I will therefore not try to demonstrate, paragraph by paragraph, that things happened as I am suggesting; instead, I will try to reconstruct events in a logically coherent account that can either be read as one would read a novel or checked against the Biblical text, point by point.

The "serpent" that incited the woman to "eat" is presented as "more crafty than any wild creature that the Lord God had made." This implies that he was not a "wild creature," and in my view he must have been a man who had undergone mutation in the laboratories of Eden. One thing is certain: the "serpent" knew more than the "gardeners" of Eden; he knew as much as the Elohim about the effects of the "tree of knowledge of good and evil," since his statement that "eating" from it would "open the eyes" of the "gardeners" proved to be correct. He must therefore have already "eaten" from it himself, and "serpent" must have been an insulting name applied to him because he had not been able to resist a desire to impress the members of the

control group by showing off his newly acquired knowledge.

As soon as the man and the woman had "swallowed" this knowledge, their eyes were opened and they saw that they were "naked." It happened quickly; not necessarily as quickly as swallowing a pill, but the knowledge they received may have been only of a few general facts, such as I that the Celestials were of the same nature as men, and that the goal of the experiments being carried out in Eden was to make men like the mutant—the "serpent"—the equals of the gods.

At first the control group would not believe him: "The ! gods have a divine nature! You're a liar!" Stung by this accusation, the "serpent" offered to show them proof inside the "tree of knowledge." The control group refused to go there; the Lord of the Celestials had told them that they would die if they went into that laboratory and "ate" the books and pictures it contained. The tempter promised them that they would not die, and that if they did as he said, their knowledge would be equal to that of the Celestials. We are not told what arguments he used; each of us can imagine those that would have been most 144 persuasive to him if he had been a member of the control group.

The text states only the bare facts: the man and the woman let themselves be persuaded, "ate," and saw that they did not die. The Lord of the Celestials had therefore lied to them. Never again would they believe him blindly. And they must have learned other things as well, since the text says that they became aware that they were "naked."

In Biblical Hebrew, "to be naked" means "to be naked," as "to eat" means "to eat." But "to acquire a garment" has the definite meaning of "to acquire a cultural heritage," as Alexandre Safran points out in *La Kabale*. And, according to Genesis, as soon as the man and the woman became aware that they were naked, they made fig-leaf garments for themselves. Makeshift garments, the cultural heritage of a self-taught man.

But the Lord of the Celestials soon enters the story directly. He is not an Almighty God who knows everything, he is the Lord of the Celestials who has relaxed his vigilance because he did not believe that human beings were capable of disobeying a divine order. He calls to the man, and the first thing he learns when he finds him is that the man has become aware that he was naked. The Lord then questions him, discovers how he was led to disobey, and curses the "serpent," condemning him to crawl.

Condemning a serpent to crawl makes no sense unless the word "serpent" is being used as an insult. A talking animal is contrary to the spirit of the Bible. Was the "serpent" a mutant, a man intended to produce descendants who would equal the Celestials, and was he cursed by being condemned to "crawl," to remain attached to the earth, in bondage to it, like ordinary men? I believe he was.

All the human beings living in Eden were affected by the same curse. They were expelled, condemned to live as farmers tilling the soil by primitive means. Why did the Celestials suddenly abandon their whole project? The reason for the expulsion of "Adam and Eve" from Eden is stated in Genesis 2.22-23: "He [the Lord

of the Elohim] said, "The man has become like one of us, knowing good and evil; what if he now reaches out his hand and takes fruit from the tree of life also, eats it and lives for ever?" So the Lord God drove him out of the garden of Eden to till the ground from which he had been taken."

Adam and Eve were expelled from Eden because they had just learned something they were not supposed to know, something that made their presence undesirable to the Celestials.

The text is quite explicit. The Lord of the Celestials says that man "has become like one of us." The text also states that if man took "fruit from the tree of life" and "ate" it, he would live forever.

The plurality of the Celestials is confirmed by the phrase "like one of us," attributed to the Lord of the Celestials, the Adonai of the Elohim.

The Celestials' experiment had ended in failure. The mutant, the "serpent," had proved to be incapable of keeping the secret of the "tree of knowledge." Whether the failure was due to an irremediable flaw in the human genetic material or to a mistake on the part of the biologists carrying out the mutation experiment was only a technical detail. The essential fact was the failure itself.

The failure was all the more total because the experiment could not be resumed. The control group, composed of specimens of a stabilized human breed that had taken thousands of years to produce, had lost its "purity," its original ignorance, because of the "serpent's" disobedience, and this meant that it was no longer usable, since the goal of the experiment was an intellectual mutation. Without a control group, the experiment had to be abandoned.

Was this enough to make it necessary for the Celestials to expel their human subjects from Eden? No, but the subjects had also learned that the Celestials were liars, and they had "eaten" the "knowledge of good and evil," about which I have said nothing because I have nothing more to say about it than what is in the text: once that knowledge had been absorbed, there was a danger that man might 146 "reach out his hand" and "eat" from an even more instructive "tree," the "tree of life," which would have made him "live forever."

Man now knew too much for a man and not enough to be accepted as a god—and he represented a danger to future operations.

The Celestials were disappointed, perhaps even disgusted. But they were not vindictive: their Lord "made tunics of skin for Adam and his wife and clothed them." (Genesis 3.21) The Tradition has always interpreted those "tunics of skin" as a cultural heritage, a stock of knowledge. The Celestials were willing to help man improve himself by his own means.

Because of his attempt to absorb "knowledge of good and evil" prematurely, man lost his benevolent mentors and found himself forced to get along on his own. The Celestials sent him out to "till the ground from which he had been taken," with the knowledge he needed to make the transition from living by hunting and

food-gathering to living by farming and herding, the transition from the Paleolithic to the Neolithic, in modern terminology.

This happened on the seventh "day," when the vernal point was in Cancer, between 8850 and 6690 B.C.

And 8000 B.C. is the approximate date given by modern anthropologists to what Andre Leroi-Gourhan has called "an explosion of innovation." In the societies of the Mediterranean basin, there appeared innovators who brought the invention of the bow and arrow, and amazing botanical knowledge that enabled the primitives to transform wild wheat into cultivated wheat by a rational selection of seed.

Evidence of that botanical knowledge has been found at Jarmo (Turkey) and Jericho. No satisfactory explanation of the stroke of genius that produced the discovery ten thousand years ago has yet been given, except—if I may forget all modesty—for the one I have proposed, based on the hypothesis of the concrete reality of the Celestials described in the Bible.

28

THE REIGN OF THE SUPERMEN

"At the end of the Paleolithic there was a radical change in the societies around the Mediterranean. Between 8000 and 5000 B.C., a technology and an economy based on agriculture and herding appeared in those societies and they took on a new form, totally different from the form they had had since their origin. [. . .] At the now famous sites of Jarmo, Shanidar, Zawi-Chemi and Catal Huyik, we have evidence of the transition, between 8000 and 6000 B.C., from an economy based on gathering wild cereals and hunting goats to an economy based on cultivating wheat and raising goats."

That is from *Le Geste et la Parole*, by Andre Leroi-Gourhan, who also states that "Paleolithic art died out with the change in living conditions that took place in about 8000 B.C."

In about 8000 B.C., at the beginning of the seventh "day," everything happened the selected human specimens who had been expelled from Eden, with the express mission of tilling the ground from which they had been taken, had established themselves as "supermen kings," identifiable as the giants of legend, and had brought to societies of the Mediterranean basin, still at the Paleolithic level, the stock of knowledge and inventions constituting the "tunic of skin" given to them by the Lord of the Celestials.

It would be easy for me to appeal to the authority of Andre Leroi-Gourhan, since he has written: "The primitive world and the world of farmers and herders are apparently 148 so different that at first sight it seems impossible to establish a connection between them without imagining an 'invention.'" But the fact is that Professor Leroi-Gourhan does not at all endorse my hypothesis, in the sketchy form in which I presented it to him in December, 1967. With great courtesy, he acknowledged that I was reasoning on the basis of respectable hypotheses, but he added that he still did not see any rigorous justification for them. And of course he was right: I do my best to

"imagine an invention," while he makes it a rule not to imagine anything and never goes beyond verified facts.

Experience has shown me that, encouraged by purveyors of sensationalism, well-meaning people may accuse Leroi-Gourhan of displaying the "conservatism of official science." Leroi-Gourhan is anything but a "conservative," and if all of "official science" took its cues from him, life would be beautiful.

If my hypothesis is disproved, Leroi-Gourhan's books will still be as solid as a rock. If my hypothesis is verified, he will have only to add that the "invention" he mentioned actually did take place, and that it was brought by people expelled from Eden. And his books will still be as solid as a rock. I would like to stress the fact that without Leroi-Gourhan my "conjectural" interpretation would be pure fiction. Let us return to our supermen.

Toward 8000 B.C. everything took place as if a group of men, descendants of a lineage experimentally bred in Eden, and expelled from there as a result of the "serpent" affair, had appeared as giants and priest-kings in possession of knowledge that was "miraculous" to men whose ancestors had survived by their own means during and after the Cataclysm of 21,500 B.C., on a planet whose biological equilibrium had been restored by the Celestials over thousands of years. There is no reason to believe that those "giants" were physically larger than the rest of the human race, and there is good reason for believing that they came as technologically advanced colonizers. To eliminate all mysticism, let us call them the "Managers."

In all the First Civilizations, the founders of dynasties of priest-kings were Managers, with knowledge derived from the teachings of gods who had come from the sky. In all those societies, the Managers appeared in the vicinity of 8000 B.C. And that is the date when, according to the findings of modern archaeology, it becomes necessary to "imagine an invention."

To form an idea of the Celestials of my hypothesis as they appear in "pagan" myths, I recommend reading *The Treasure of the Sphinx*, by Andrew Tomas. I disagree with the author on certain points, though I have no evidence that would justify me in stating categorically that his views are less accurate than mine. I am, for example, convinced that the "pagan" myths almost invariably confuse the Cataclysm of the Würm III glaciation with a much more recent event, a flood, a "deluge" which left a ten-foot layer of alluvial deposits, notably in Mesopotamia.

Below that layer, fragments of rudimentary hand-made pottery are found, while above it there are fragments of much more advanced pottery, made on a potter's wheel: the "deluge" corresponds to the arrival of an "invention." For more details, I recommend *The Bible as History*, by Werner Keller, and I recommend it all the more because the author does not even deign to mention the possibility that the first eleven chapters of the Bible might be worth taking into consideration.

I agree with neither Andrew Tomas, who considers the "pagan" myths equivalent to the Biblical text, nor Werner Keller, who seems to regard the first eleven chapters of Genesis (the ones that interest me most) as superstitious mythology. Thorough exploration of the moon in the near future will decide the relative merits of our

interpretations. For my part, I believe that the Celestials were astronauts who found the earth ravaged by the Cataclysm of 21,500 B.C., and that their departure, in about 7000 B.C., was marked by a flood that was much less destructive.

The Bible and its "pagan" counterparts are in total agreement on one point: the gods were disappointed, and aware of a major failure. Their plan seems to have been to establish a hereditary monarchical world government in the hands of Celestials reproducing between brothers and 150 sisters, a privilege reserved for genetically pure individuals.

From here on there is divergence. The "pagan" myths say that the plan was actually carried out for a time, that the Celestials reigned over men. From the Bible it appears that the reign was exercised by Nefilim, a word that means "fallen ones," and is usually translated as "giants." The literal meaning fits the context better: the Managers had "fallen" with respect to the Celestials, whom the Christian Tradition calls angels. Those "fallen ones" brought "light" to men, an act attributed to Lucifer by the Christian Tradition, and to Prometheus by the Greeks.

The "fallen ones" did not understand the meaning and scope of the Celestials' overall plan until it was too late, after the "fall." Then, having understood, they recorded what they knew in the Tradition that is the foundation of Judaeo-Christianity, whose mission since Moses has been to try to repair the damage.

A comparison between the sacred texts and the data of modern science enables us to form a plausible idea of what life on earth might have been like if it had not been for the "original sin" of the mutants in Eden. The Celestials intended to make them their deputies, to place them in charge of the rest of mankind, who would be left to develop naturally, but under supervision. When the "original sin" put an end to this plan, the Celestials expelled all men from Eden and forbade them to return, except to bring meat and farm produce. (See Genesis 4.3-4.)

But despite the "fall," Adam's descendants remained the legitimate representatives of the Celestials, as is shown by the genealogy in the fifth chapter of Genesis. These Managers therefore had some of the Celestials' technology at their disposal, and they were able to perform feats that seemed miraculous to their primitive contemporaries, so miraculous that the latter could see no difference between the Managers who had come from Eden and the Celestials who had come from another planetary system.

Did the Managers, vain and flattered, consent to be venerated as gods, when they were under instructions simply to act as supervisors? That is what the text seems to indicate.

"The gods divided the earth among themselves, without dispute," says Plato in the *Critias*. Were those gods the Celestials, who in the Bible are always shown acting as a unified group? It is more likely that, just as they confuse the Deluge with the Cataclysm, "pagan" legends confuse the Managers with the Celestials. When the Managers had set themselves up as divine rulers, did they begin making encroachments on each other's territory that finally led them to fight among themselves? Here again, sacred legends, historical data and what knowledge we have of human nature are in agreement: the Managers behaved like petty tyrants invested

with too much power for their moral worth. They quarreled with each other and led the people under their authority into idiotic wars. Naive legends describe those conflicts as "the wars of the gods," but the Bible reveals their pettiness in the story of how Cain killed Abel out of jealousy, because "The Lord received Abel and his gift with favour; but Cain and his gift he did not receive." (Genesis 4.4-5.)

The Celestials had lost all confidence in man. They prepared to leave. "When the Lord saw that man had done much evil on earth, and that his thoughts and inclinations were always evil, he was sorry that he had made man on earth, and he was grieved at heart." {Genesis 6.5-6.)

We had a narrow escape: the Lord of the Celestials had just decided to wipe out every form of life on earth {Genesis 6.7) when Noah intervened. Noah was one of the Managers whose genealogy, full of symbols into which it is better not to venture too far, is given in the fifth chapter of Genesis. He had "won the Lord's favour." {Genesis 6.8)

Before going on to the story of Noah in the next chapter, let us take a glance at what man's fate might have been if . . .

The Celestials did not intend to turn over the management of the planet to the control group, symbolized by Adam, but to the more intelligent mutants, symbolized by Lucifer. Would Lucifer have been more successful in managing the planet if, instead of trying to impress Adam, he had held his tongue and let the Celestials continue their experiments on him and his lineage?

Lucifer still has his supporters. Luciferian heresies are a concrete reality; Nazism should make us remember that. Taking their inspiration from the remnants of the original overall plan that have been preserved, Luciferian heresies give themselves the right to eliminate human "races" that do not suit them. The Nazis did not intend to exterminate only the Jews. Proportionately, they killed more Gypsies than Jews (the Gypsy Tradition is astonishingly close to the Jewish), and the Nazi mystics intended to exterminate Christianity after their victory, not by killing all Christians, of course—there were too many of them—but by replacing orthodox Christianity with the Church of Arius.

In mystical language (as used by several correspondents who have written to me after reading my previous books), Nazism was a heresy because it claimed for the descendants of Lucifer the rights that the Celestials had withdrawn from them.

In scientific language, that amounts to saying that no bipeds physically in our image have the moral right to experiment on man, as we experiment on animals, unless they can prove a superiority to man equivalent to the superiority to animals that we attribute to ourselves.

In sociological language, it amounts to saying that Nazism and all other demiurgic ideologies that claim the right to modify human nature are abominations that must be exterminated, even if, in exterminating them, we must arrogate the right of life and death to ourselves.

Were the Celestials justified in assuming the right to experiment on our ancestors? Did they have a moral right to organize mankind into anthills governed by Managers? Did they go beyond the rights conferred on them by their power when they planned to give the mass of mankind a bovine happiness protected by an aristocracy of mutated human beings who would practice selective breeding based on elimination of degenerate specimens? If the Celestials' Great Plan had been carried out, you and I would be either "cattle" content with our lot or Managers with the responsibility of assuring the happiness of the human herd. In neither case would it ever occur to us to contest the Celestials' right to impose their will, and we would therefore be living in a state that would correspond to one definition of happiness: "an inability to imagine a more pleasant state."

There is no reason to reject the idea that our astronauts may some day discover, in a lunar crater, a "bow of the covenant" giving its possessors the means (and the right) to impose a conditioned happiness of that type on the human race.

The very thought of such happiness is revolting to you? If so, you bring us back to the ancient debate concerning the Celestials' sociology, which Andre Gide, a Protestant who was steeped in the Bible and exuded sin as naturally as an athlete exudes sweat, admirably summed up in a dialogue that I will present in a simplified version:

"You must be blind to be happy, because you can see yourself only as unhappy."
"You must be happy that you are blind, because seeing j yourself can only make you unhappy."

Noah and the Lord of the Celestials were in agreement: the human masses had to be made glad of their blindness, so that they could enjoy a bovine happiness. The "serpent" who had "opened the eyes" of men was an evildoer, and at the time of the conversation between Noah and the Lord of the Celestials, the "serpent's" view had won out: the Celestials' plan for a placid, bovine happiness had been : replaced by a system of furious wars whose aim was to conquer a happiness that was still completely undefined. The Celestials had wanted to create cattle, the earth was now swarming with rats.

The Lord of the Celestials decided to destroy everything, but Noah asked for a chance to try to succeed where the j Celestials had failed.
And Noah won the Lord's favor.

Naive souls, those who read the Bible on an elementary level, may still have hopes that some day the remains of a big boat will be found on Mount Ararat, with the name Ark on its bow, followed by the words "Noah, Captain and Owner." It takes all kinds of people to make a world.

In the original Hebrew text, we read that the Lord of the Elohim Wmsself made the decision to give Noah his chance. Then, when Noah had "won the Lord's favor," the Elohim (plural) took him in hand and gave him the detailed instructions for building

the "ark."

It is not necessary to know Hebrew, but one must at least be willing to accept what the original text says: interpreting the Bible on the basis of a translation is like discussing the nuances of Shakespeare's style in a French translation of Hamlet, or trying to grasp the subtleties of seventeenth-century French civilization in a Japanese translation of Racine. In simplified form, here is what the Hebrew text says: at first the Elohim was determined to destroy all life on earth, but then, when Noah had won the Lord's favor, the Elohim were willing to help him. As for the "ark" ...

In the Hebrew text, what Noah built under the supervision of the Elohim was a *tebah*. The general meaning of *tebah* is "container." Pharaoh's daughter found the infant Moses in a *tebah*. Is it possible that Hebrew, a language with a subtle vocabulary, would use the same word to designate something the size of a basket, where Moses is concerned, and, in the case of Noah, a ship big enough to lodge pairs of every animal species on earth, including elephants and hippopotamuses? While naive souls continue to look for the remains of a ship on Mount Ararat, let me suggest that a more accurate translation of *tebah* would be "capsule."

If the Biblical text has a rational meaning, Noah did not bring two elephants, a pair of fleas and a raccoon couple into his *tebah*: he took with him what the Gilgamesh Epic calls "the seeds of life." He took other things with him, too. Everything we know about the sojourn of the Celestials, all the knowledge bequeathed by them and handed down to the present—all that was preserved for us by Noah in his *tebah*.

Noah is our only point of contact with the Celestials after the "Deluge." Sir Leonard Woolley's excavations at Ur (the city where Abraham was born) uncovered, at a depth corresponding to the seventh "day," a ten-foot alluvial layer deposited by a flood of a magnitude that would justify the Meso-potamian populations in having kept the memory of a "deluge." We also know that traces of a comparable flood have been found in other regions of the Mediterranean basin. So much for the materiality of the Deluge in question.

What about the atomic explosion of Sodom and Gomorrah that some mystery-lovers like to associate with the Deluge? If they read their Bibles a little more attentively, they would see that the destruction of Sodom and Gomorrah took place much later, in historical times, during the lifetime of Abraham, who was born in about 2000 B.C.

But the Bible tells us that the Celestials lived in Eden, and no trace of Eden subsists, except in the myth of Atlantis, a tenacious myth that is perfectly compatible with the description of Eden, whose destruction suggests a super-Hiroshima. Where Eden stood, there is now sand beneath which archaeologists are discovering traces of a fantastic tidal wave.

If the explanation above is accepted as a working hypothesis, the rest of the Biblical account becomes so coherent that the working hypothesis begins to take on the appearance of a solidly based theory. But let us not get ahead of our story.

When Noah, working under the supervision of the Celestials, had finished building

his tebah, which was to contain all the genetic material he would need to "win his bet" through the generations that would descend from him, he took shelter in it and waited for the situation to become normal again. When the situation had become normal again, he came out and, with the help of his three sons, began the enterprise intended to lead the lineage descended from him to equal the Celestials, despite the Celestials' departure, knowing that the whole enterprise would take thousands of years, until the Age of Aquarius, or Golden Age, of the Tradition. We are now in the Age of Aquarius.

30

THE STORY OF NOAH, THE BOW, AND THE ARCHERS

Noah built his tebah under the guidance of the Elohim; once he had finished it, the Lord of the Celestials, Adonai, reappeared and gave him his final instructions. It was Adonai himself who "closed the door on him." (Genesis 7.16.)

Unless we are detennined in advance to take our desires for realities, it is impossible to follow the Christian exegesists for whom "Elohim," "Adonai," "Yahweh," "Shaddai" and other divine names are strictly synonymous and indifferently designate the same God.

Am I taking my desires for realities when I propose reading the Biblical text as the story of the astronauts departure after they had confided their heritage to a trusted Manager? We will know the answer to that question with certainty when the moon has been explored. In the meantime, let us continue reading.

"And so it came about that, on the first day of the first month of his six hundred and first year, the water had dried up on the earth, and Noah removed the hatch and looked out of the ark. The surface on the ground was dry. By the twenty-seventh day of the second month the whole earth was dry. And God said to Noah, 'Come out of the ark . . .'" (Genesis 8.1M6.)

The astronauts of the Apollo program obey orders sent to them from earth by the scientists who conceived the program they are carrying out. In the Biblical story, the positions are reversed: the scientists who conceived the "tebah program" are in space, having left the earth, and Noah, who is carrying out the program, remains on earth. Communication between the Elohim and Noah is no more "miraculous" than radio and television contact between the Apollo astronauts and Cape Kennedy—provided we view it from the standpoint of our own time and forget the centuries when speaking at a distance was regarded as a divine miracle.

As soon as the Elohim had given him the order, Noah came out of the tebah and built an "altar" from which a "soothing odor" reached the Lord of the Elohim. You are not obliged to follow me when I put myself in Noah's place and conclude that the first thing he must have done when he came out of the tebah was to set up a powerful receiver and transmitter to continue communicating with the Celestials and receiving instructions from them.

Whether you follow me or not, in the ninth chapter of Genesis Noah begins receiving instructions. And in that chapter he learns of the existence of the "bow of the covenant." In Hebrew, the "bow" that is "set in the cloud" is a keshet. The word

specifically designates the bow used by an archer. There is no justification for assuming that it means "rainbow."

Read as I propose reading it, the Hebrew text offers an account that is consistent with the data of modern science, and some of those data have led me to believe that the "bow of the covenant" is a symbolic "bow," a propulsive mechanism, in the sense that the launch pads of Cape Kennedy are propulsive mechanisms, and that it is now on the moon. Excellent scientists have said—and written—that the hypothesis is conjectural but not absurd. Excellent theologians have said the same thing.

If my interpretation is as clear as I claim it to be, why is the word *keshet* still considered to mean "rainbow" in Genesis? I have asked several knowledgeable people that question, and the following is typical of the answers I have received: "Because it would be absurd to imagine God leaving a bow for shooting arrows in the sky. Why not a machine gun?"

We are always brought back to the same point: if "Elohim" means "God," the Bible is a mixture of the supernatural and the poetic, and trying to find logic in it is as futile as trying to find a divine crossbow in the clouds; but if "Elohim" refers to astronauts, the Biblical narrative is logical and perfectly compatible with what we know about our own astronauts.

The bow and the archer occupy a preponderant place in the Tradition. In Hebrew, an archer is both a sage and a knight. In Chinese mythology, Emperor Yao gave the title of "divine archer" to a man who was considered to have ridden on a celestial bird, and to have reached such a great altitude that (like our astronauts) he no longer saw the rising and the setting of the sun. The title given to this man had nothing to do with his skill in using a bow: he was called a "divine archer" because he was believed to have ridden on a celestial bird. The constellation at the center of our galaxy is known as Sagittarius, the Archer. Unless they had telescopes, the men of ancient times could not have determined that the constellation of the Archer is at the center of our galaxy; they could not even have determined that the galaxy had a center. And in order to know that beyond a certain altitude one can no longer see the rising and setting of the sun, one must either travel in a spacecraft or know as much astronomy as Kepler.

31

NOAH AND HIS TWO SONS

All life was obviously not wiped out by the Deluge that took place when the Celestials left the planet, destroying Eden, its outstations, its nuclear power plants, and other installations which it* would have been unwise to leave at the disposal of a human race whose "thoughts and inclinations were always evil," (Genesis 6.5)

The Deluge was certainly very spectacular: Eden was totally destroyed and there was enormous damage in the vicinity; but, further away, the effects were not serious.

It would be absurd to claim that life disappeared all over the planet, although on this point, for the first time, I am obliged to deny that the Biblical text means exactly what it says. When, at the end of the seventh chapter of Genesis, I read that "every living thing" was wiped out, I must assume that the meaning of "every living thing" is

no more literal than that of "everyone" when it is used, as it often is, to mean "everyone I know." In defense of the text, I must point out that the passage is at the end of the seventh of the nine chapters that Genesis devotes to the arrival, sojourn and departure of the Celestials, and that this is the first time I have had any occasion to accuse the narrator of exaggeration or literary hyperbole.

It would be absurd to claim that life disappeared all over the planet, because archaeologists, anthropologists, zoologists and botanists have abundant proof to the contrary. Did the Cataclysm of 21,500 B.C. make nearly all life disappear for several centuries? It is possible; our most reliable methods of dating can neither prove nor disprove a gap of several hundred years so far back in the past. But for the past of less than ten thousand years ago, we have enough solidly established knowledge to exclude the possibility of anything but a strictly localized Deluge.

The ninth chapter of Genesis, which contains the promise of a "bow of the covenant," ends with the scene in which Noah gets so drunk that he lies naked in his tent. Why does the text describe such inglorious behavior on the part of Noah, the savior of the human race? Is it to make us grasp the discouragement that came over him, now that he had been left alone on earth with his three sons to carry out the overwhelmingly difficult task of making man mend his ways and accept the constraints of a plan spread over thousands of years, without the guidance of the Celestials, in order to find the "bow of the covenant" in the distant future? That is the interpretation I propose.

Zodiacal symbolism is respected in a way that leaves no room for doubt. The seventh "day," the "day" of the "Celestials* rest," is over, and the eighth has begun, the "day" during which, for 2160 years, the vernal point will be in Gemini, the Twins. The text does not simply attribute two sons to Noah, because that might be regarded as a fortuitous coincidence. It attributed three sons to him, then "subtracts" one for a minor offense: having seen his papa's nakedness.

At first sight, this way of reasoning seems to be nothing but a gratuitous complication, but in fact it is an instance of the "cabalistic" reasoning that is directly related to the logical precision of modern science. Consider this example: if I write that "John had two sons, Peter and Paul," a logician might accuse me of vagueness because I have not said whether or not John had other sons besides Peter and Paul. If I write that "John had only two sons, Peter and Paul," I have made an improvement, but the "only" may be omitted by a copyist, which would bring us back to the first problem. But if I write that "Noah had three sons, Shem, Ham and Japetli, one of whom, Ham, he disowned," I have transmitted the totality of the message: 1) there can be no doubt about the number of sons who were "active heirs"; 2) the use of a transparent code to indicate that there were only two active heirs calls attention to the importance of the fact that there were two; 3) the importance given to the fact that Noah had two sons when the vernal point was entering the Twins stresses the link between the Biblical Tradition and zodiacal symbolism.

If anyone doubts the reality of such reasoning in the Judaeo-Christian Tradition, I would ask him to give a coherent explanation, using a different mode of reasoning, of the story of Judas.

The most detailed version of the story of Judas is given in the thirteenth chapter of John. Jesus was "well aware that the Father had entrusted everything to him," and he "knew who was going to betray him," but he also knew that there was "a text of Scripture to be fulfilled." He told his disciples that one of them would betray him.

"The disciples looked at one another in bewilderment: whom could he be thinking of? One of them, the disciple he loved, was reclining close beside Jesus. So Simon Peter nodded to him and said, 'Ask who it is he means.' That disciple, as he reclined, leaned back close to Jesus and asked, 'Lord, who is it?' Jesus replied, 'It is the man to whom I give this piece of bread when I have dipped it in the dish.' Then, after dipping it in the dish, he took it out and gave it to Judas son of Simon Iscariot. As soon as Judas had received it Satan entered him. Jesus said to him, 'Do quickly what you have to do.' No one at the table understood what he meant by this."

Judas was the disciple to be "subtracted" from the twelve, so that there would be eleven to indicate the entry of the vernal point into Pisces, the eleventh "day" of the zodiacal symbolism.

NOAH'S HEIRS BEGIN TO DOUBT

The Celestials had departed, destroying their installations on earth, after leaving Noah their teachings and a minimum of equipment.

Did they go off to civilize some other planetary system? It is highly unlikely: such an expedition seems conceivable ; only on a planet with an advanced technology, where hundreds or even thousands of scientists and technicians can be assigned to the preparation and launching of each spacecraft that will carry a group of future colonizers.

Furthermore, Phobos and Deimos, the moons of Mars that I propose considering as the immense spaceships without which I cannot imagine thirty astronauts confronting a million primitive natives (though my imagination may be too limited), are still in orbit around Mars.

Did the Celestials build a "small" spacecraft, just adequate to take them to another planetary system where colonization had been more successfully carried out by settlers whose ancestors had left Theos at the same time as those of "our" Celestials? I think so. Various legends and several passages in Plato seem to point in that direction, but it is only a speculation and I have no solid evidence to support it.

However, the fact that the promise of a "bow of the covenant set in the cloud" was made only after the departure of the Celestials is one of the reasons for my belief that the "bow" is now on the moon. The order of events in the Bible is as follows: the Celestials decide to destroy everything on earth (and therefore to leave), then Noah wins their favor; they help him to build his tebah and ! load it with equipment, written material and "seeds of life," then the Lord of the Celestials himself closes the tebah from the outside and the Celestials leave, setting off the Deluge by some sort of delayed-action mechanism. Only when the effects of the Deluge have been dissipated J and Noah comes out of his tebah does he receive the specific promise of a bow—a propulsive mechanism—o] the covenant,

I obviously do not know whether that means that since the Celestials' departure, controlled from inside their spacecraft, had taken place successfully, the launching installation ("bow") was still in good condition on the moon. But from what I have come to know of the particular style of the Bible, I can say that if that had been the idea to be expressed, the text would have expressed it in those terms. In the rest of the text, Noah, his sons, Abraham, Moses, \ and the prophets, extending into historical times, constantly speak of information they have received from the Celestials.

One of the same reasons that make me consider it probable that the Celestials came to our planet thousands of years ago makes me consider it almost certain that they [have not returned since their departure. The probability of their stay on earth is supported by the existence in ancient j times of knowledge that cannot be explained otherwise. If t even one or two Celestials had returned since then, I especially in historical times, the weight of their intervention in human affairs would have been so great that no one could have any doubt of their reality.

For analogous reasons, the idea that the Hebrew prophets of historical times may have had radio conversations with the Celestials must be rejected: if I were in communication with such an advanced civilization, I would long since have taken advantage of it to obtain information that would enable me to make scientific devices incomparably superior to anything else on earth, I and you would kneel before respectfully addressing me.

Moses would have done the same, and he would have avoided many difficulties.

But it is quite possible that the prophets had access to some of the documents left to Noah, that they interpreted them to the best of their ability, and that they marked the difference between their personal opinions and certain things that had been "revealed by the Elohim" by writing, "the Elohim have told me . . ." just as I write, "The Bible tells me . . ."

But let us return to Noah.

The Celestials had left; the earth now belonged to men. Noah's task was to give them a line of priest-kings capable of interpreting the texts left by the Celestials and imposing their dominion on human societies, some of which, in that eighth "day" of Gemini (6690 to 4530 B.C.), were still at a very primitive level, with no knowledge of either agriculture or herding.

Noah and his sons went off to establish their rule. The primitives must have been glad to accept the authority of priest-kings who came to them with knowledge and technology that they could only regard as powerful magic.

Noah's sons multiplied, but the population of the earth was already several million by 6500 B.C. (it was probably about one million in 22,000 B.C., and two hundred million by the time of Christ). The "gods" who, according to Plato, "divided the earth among themselves without dispute," were no doubt the Managers of the seventh "day," but in some cases at least, it is possible that they were descendants of Noah, in

the eighth "day," because there are many clues which seem to indicate that it was only in the relatively recent past, after the vernal point had entered Gemini (6690 B.C.), that the Chinese, Tibetan, Indian, Mesopotamian and even Mediterranean legends began to diverge.

When Noah's sons and grandsons scattered over the Mediterranean basin and Mesopotamia, the close and outlying suburbs of the Celestials' Eden, there was no problem of authority for several generations. All the societies in that region knew who the Celestials were, and the authority they had delegated to Noah's sons was an unquestioned fact. This was the beginning of the First Civilizations.

As the colonizers continued to spread, however, things must have become more complicated. Were societies far away from Eden, now destroyed, convinced of the concrete reality of the Celestials? Noah's descendants probably had to begin by establishing their superiority over the local witch doctors with a display of technological "miracles." But even when they had demonstrated their "magic," they still had to gain acceptance of their authority, and superstitions are notoriously long-lived.

Noah's descendants ruled some societies and overawed others, but despite all their efforts there were still societies that refused to believe in Noah's Celestials and continued to prefer their witch doctors.

Centuries passed.

From now on we must count in hundreds rather than thousands of years: the Celestials, who had eternity before them, were gone, and a century is a long time to men.

To Noah and his sons, who had had direct contact with the Celestials, their concrete reality was a fact of experience. To Noah's great-grandsons it was still a certainty, but to their grandsons it was only an article of faith. A few centuries more, and Noah's descendants would begin to have doubts.

Doubts, as Peter Ustinov has aptly pointed out, are what unites men: they fight only for their certainties.

From the time when the priest-kings, Noah's heirs, had their first doubts, the heritage was virtually lost: instead of continuing to treat the witch doctors of neighboring tribes as idolaters and making war on them, Noah's heirs began having friendly discussions with them.

And it is clear that Noah's heirs were at a great disadvantage in such ecumenical debates. Put yourself in the place of a primitive and listen to the opposing arguments. The witch doctors explain that the sun is a god, that the moon is a goddess, and that thunder was born of their divine love affair. It is a simple and attractive doctrine. To oppose it, Noah's heirs speak of a "system" with the sun as its center, of a moon that is not a goddess but a little earth with a bow installed on it, a bow that can launch a box with men in it and send them further away than the sun.

Being a primitive, you do not believe one word of that nonsense. You sneer and issue a challenge to Noah's heirs: "If it's true that on the moon there's a bow that can send men to the sun, why don't you make a bow on earth, a bow as big as a house, that can send you to the moon?"

And because they had doubts, the priest-kings descended from Noah took up the challenge. They decided to make a bow that would send them to the moon. They would install it on a tower, a tower "with its top in the heavens." (Genesis 11.4.)

I understand Noah's rash heirs all the better because, like them, I have doubts related to a certainty. But my doubts are about the reality of the "bow" on the moon, and to Noah's heirs the reality of that "bow" was the certainty that justified the risk of building the tower. Their doubts were about the possibility of reaching the moon; my certainty is that the moon will soon be explored.

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THE TOWER WITH ITS TOP IN THE HEAVENS

Since the affair of the "Tower of Babel" took place in prehistoric times, when the only known propulsive mechanism was the bow, the tower must have been conceived as the stock of a mammoth ancestor of the crossbow. The Bible says nothing of the height to be reached "in the heavens," in those "heavens" where the "bow of the covenant" had been placed. But the height is specified in Indian texts, where the "tower" bears the name of the "Meru mountain." Its top was to reach a height of eighty-four thousand yodshana, "which is enough to show that it is a myth," commented Karl Koppen, one of the most reputable nineteenth-century specialists in those myths. In the nineteenth century, the idea of reaching an altitude of eighty-four thousand yodshana was implausible enough to appear mythical, because it is a distance equivalent to the orbit of the moon.

Can we say that it was only an amusing pastime, that men did not know what they were doing in trying to reach the orbit of the moon? No, because the Biblical text comments on it in terms that show an awareness of space travel as a concrete human possibility: the Lord of the Celestials is quoted as saying that now that the tower-builders have undertaken their project, "nothing they have a mind to do will be beyond their reach." {Genesis 11.6}

Did the Celestials come to earth to prevent men from reaching the skies? It is obvious that neither a monstrous crossbow nor any other propulsive mechanism that might have been built by prehistoric men had the slightest chance of overcoming the earth's gravity. Even if the Celestials were keeping an eye on men's doings from a distance, even if they were able to make a trip to the earth from another planetary system as quickly and easily as we fly across the Atlantic (which they were almost certainly unable to do), even if anything you like, there was no need for any Celestial to bother coming to the earth, because it was in the natural order of things that primitives could not undertake such an ambitious project without the consequences described in the Bible: the builders began blaming each other for their failure, they argued about the meaning of the sacred texts until they no longer understood each other, and finally they abandoned the project and dispersed in a terrible "confusion of

speech."

Reaching the moon in prehistoric times was certainly a premature ambition for men. "Never attempt anything prematurely" is one of the first precepts of the Tradition.

"Everything in this world is subject to the Law revealed by the Elohim" is also one of the first precepts of the Tradition.

Did the Lord of the Celestials "say" that he would "confuse the speech" of men if they tried to reach the moon before the time was "ripe" for them to do so? Yes, he "said" that in exactly the same way as Carnot "says" that his Second Principle will always confound men who attempt to build a perpetual-motion machine. Descartes speaks the language of reason—even though he has been dead for some time now. To understand what the Celestials of the Biblical text say to us, we need only grant the text the same license used by Littré, who did not hesitate to write, "Montaigne says that . . ."

The Celestials who left their teachings to Noah have been dead for thousands of years. I believe that their descendants are living in some nearby planetary system, and I am sure there is no need for them to bother coming to earth in order for me to "hear" what their ancestors, who were the "gods" of ours, "say" to me.

There is still a reproach that can be made against the Bible: why does it speak such an obscure language?

That would be a serious reproach if the language of the Bible were obscure to those to whom it was addressed . . . and is still addressed.

"You don't understand Chinese either, yet Chinese is understood by seven hundred million people," Picasso once said to a man who had complained that abstract painting spoke a language that was obscure to him.

Today, only a few specialists are able to "read" the sculpture in Gothic cathedrals; in the Middle Ages, all Christians, some of them unable to read a book, easily read the symbolism of the cathedrals.

Who still knows how to read the Bible? Without even speaking of those who claim to know how to read it, there are quite a few people who do read it, and they note that after the rash attempt of Noah's descendants to reach the moon, human speech remained confused until the time of Abraham, who claimed to have rediscovered the "real meaning" of Noah's "real words," and who, starting from nothing, became the ancestor of the Judaeo-Christian civilization that has finally built a tower whose top is in the heavens.

Historical times begin between 5000 and 4000 B.C. We know that at this time there was already an advanced civilization in China, another in Egypt, and another in Mesopotamia, particularly in Ur of the Chaldees, where the Bible says that Abraham,

son of Terah, was born.

It was in 1929 that excavations directed by Sir Leonard Woolley brought to light the ruins of Ur. Little by little, the excavations confirmed the historical accuracy of the Bible. Evidence of the existence of Terah, Abraham's father, was found. Abraham's peregrinations, as described in the Bible, were verified. There are many recent books, based on the latest discoveries, which demonstrate that The Bible Was Right, to translate the original title of Werner Keller's book, published in English as The Bible as History. The historical truth of the Bible, beginning with the twelfth chapter of Genesis, where Abraham appears, has become almost a commonplace among specialists.

One thing remains unexplained: the combination of circumstances by which Abraham, an almost solitary wanderer, became the acknowledged "father" of a people who, six centuries later, were numerous when Moses led them out of Egypt.

What seems even more inexplicable is that from Abraham onward the continuity of that people has been unbroken. They outlived the most powerful empires of antiquity, engendered Christianity, and recently reoccupied Jerusalem, as their Tradition had always said they must do when the right time had come, a time that would be marked by certain accomplishments—the very accomplishments that were being made when Jerusalem was reoccupied.

The historical truth of the Bible from Abraham onward is an indissoluble mixture of established historical facts, prophecy, and verified scientific hypotheses. It is now incontestable, and it is incompatible with the rationalism of the nineteenth century. It will, however, become perfectly compatible with the rational knowledge of the twentieth century as soon as the historical truth of the first eleven chapters of Genesis, whose plausibility I have tried to establish in this book, has been confirmed. That confirmation can be found only on the moon and Mars.

What are the chances that the hypothesis will be disproved?

If "my" Celestials did not exist, if I am a poet who has invented an imaginary meaning for a mythological story (or if I have given an imaginary rational meaning to a poetic story), there is no choice but to appeal to whole chains of coincidences, miracles by the carload, and thick layers of supernaturalism in order to explain the verification, before our eyes, of the promises made by a Tradition going back to a "deluge" confirmed by excavations at Ur, a Tradition that was rediscovered by Abraham, whose adventures, as related in the Bible, have been confirmed by modern historians.

The chances that my hypothesis will be disproved therefore seem slim to me. It will be disproved if exploration of the moon fails to provide irrefutable evidence of the reality of "my" Celestials. I am like you: the thought that all our usual ideas about the origin of "Abraham's revelation" may soon be completely overturned ... no, I cannot really "believe in it." But the more I try to find reasons for thinking that my hypothesis may be disproved, the more reasons I find for thinking that the "bow of the covenant" is waiting for us on the moon. So . . .

So I will try to talk about something else. But it is difficult.

If "my" Celestials actually existed, the story of Lot takes on rational meaning. The Bible tells how Lot, Abraham's nephew, accompanied by his wife and two daughters, witnessed an explosion that must have seemed to be the end of the world. If "my" Celestials never existed, there could not have been a nuclear explosion on earth two thousand years before Christ. But if what Lot saw was not a nuclear explosion, it was a miracle. The nineteenth chapter of Genesis relates how two "messengers" (usually translated as "angels") set off something whose description matches that of a nuclear explosion.

Had the Celestials intentionally or inadvertently left nuclear fuel in a secondary Eden? The Bible tells us that before the destruction of Sodom and Gomorrah, the region was like a "garden of the Lord." If a "divine garden" was transformed into what one now sees on the shore of the Dead Sea, the explosion was so powerful that the bomb dropped on Hiroshima would seem mild by comparison.

Had the Celestials intentionally or inadvertently left Noah a source of energy that would have made it possible to reach the moon within a few centuries or millennia? The answer to that question, too, will be found on the moon.

Let us return to Abraham.

You need no help from me to read in Genesis the adventures of Abraham, his son Isaac, and his grandsons Esau and Jacob; the story of Esau selling his birthright to Jacob for a dish of lentil broth; the story of Jacob "wrestling" with an "angel" and thus winning the name of "Israel," or "God strove," because he "strove with God and with men, and prevailed." Nor do you need any help from me to find historical confirmation of all that in Sir Leonard Wooley's works, or dozens of other books, such as Werner Keller's *The Bible as History*.

In Keller's book there is a fine example of the fanaticism that, through the centuries, has succeeded in creating a widespread belief that the Bible is an obscure, impenetrable work.

In Exodus, the Bible says that the Hebrews were kept alive in the desert by "manna" that fell from the sky. Toward the end of the fifteenth century, the dean of the university at Mainz, Germany, returning from a pilgrimage to Mount Sinai, declared that "heavenly bread" fell there each morning, and that it was very good to eat. But the humanistic Renaissance was already on the scene: few people were willing to pay serious attention to such medieval nonsense. In 1823 a German botanist verified the fact, proposed a rational explanation for it—and was rebuffed by his scientific colleagues, in the name of all the magnificent certainties of the nineteenth century. A few years ago, two highly respected botanists not only verified the fact again, but established its scientific explanation. It is no longer either contestable or contested: manna, which the Bible describes as falling from the sky in the region of Mount Sinai, actually does fall from the sky there. And it falls for reasons that are no more supernatural than the reasons I have put forward to justify my hypothesis of the historical reality of the Celestials.

Twentieth-century science will be kept busy sweeping away positivistic superstitions for a long time to come.

FROM JOSEPH TO MOSES

In the preceding chapter, I made some departures from chronological order; I will return to it here. Noah had been given the heritage directly. His descendants allowed the Tradition to crumble away. Abraham rediscovered parts of it and did his best to reconstruct what was still lost. His son Isaac, and especially his grandson Jacob, renamed Israel, improved the reconstruction. Joseph, son of Jacob-Israel, possessed a reconstructed version of the Tradition that enabled him to become Pharaoh's trusted adviser. Then Joseph died. His death marks the end of Genesis.

It also marks a loss of the Tradition to Abraham's lineage, because the next book, Exodus, begins by indicating implicitly that Joseph had died without a spiritual heir among the Hebrews: when a new pharaoh, "one who knew nothing of Joseph" (Exodus 1.8) ascended the throne, the Hebrews, now numerous, were reduced to slavery by the Egyptians.

They were still in slavery when Moses appeared. He was found as an infant, floating on the Nile in a *tebah*, a "cradle" designated by the same Hebrew word as the "ark" in which Noah had preserved the heritage of the Celestials. Specialists in the Tradition sometimes maintain that the Bible thus indicates that Moses was "predestined" to recover the Tradition of Noah.

That was exactly what he recovered.

It matters little to us whether Moses's role was predictable while he was still a baby or whether it was ascertained after the fact, when his beard had turned white. Determining whether a man is a predestined leader or an imposter is a serious problem for his contemporaries, who must decide whether to accept his authority or not, but to his heirs it is only an historical detail.

Predestined or not, Moses recovered the Tradition of Noah. He codified it into the "Law of Moses" and entrusted its transmission to the people of Abraham, whose predestination, or lack of it, is no more important to us than that of Moses.

But Moses did not do all that without difficulty. He began by having serious trouble with the priests of Ammon, who had made him one of them. Ammon was a ram god, during the time when the vernal point was in Aries, the Ram. The founders of the religion of Ammon had thus indicated that they were the legitimate heirs of the Tradition of Noah, in which a connection had always been maintained between religious symbolism and the precession of the equinoxes: Noah's two sons for the Age of Gemini, the Twins; Apis, the bull god, for the Age of Taurus, the Bull; a ram god for the Age of Aries, the Ram; fish symbolism for the Christian Age of Pisces, the Fish; the symbol of a double wave for the wave mechanics of the Age of Aquarius which we have just entered.

At the time when Moses began having trouble with the priests of Ammon, he

apparently accused them of having lost the thread of the Tradition, of having let themselves become bogged down in superstition to the point of believing that Ammon was a god because he was a ram, whereas, to the Tradition transmitted by Noah, Ammon was nothing but a piece of carved stone whose only purpose was to indicate that Noah's heirs knew the precession of the equinoxes thousands of years before profane astronomers learned it from Hipparchus.

Moses was obviously reasoning more from hypotheses than from certainties when he had to flee from Egypt. He fled into a desert in the land of Midian.

What did he find in that desert? He claimed to have found knowledge inherited from the Celestials. The fact is that when he returned from Midian he no longer feared the priests, and it even seems that they were afraid of him.

In his *Philosophical Dictionary*, Voltaire expressed surprise that no historian had ever recorded anything about the changing of the Nile into blood, the killing of all the Egyptians' first-born, or any of the other plagues which, according to the Bible, Moses brought down upon Egypt.

Voltaire was right to be surprised. Moses lived in the fifteenth and fourteenth centuries before Christ; if even one of those plagues had befallen Egypt in such relatively recent times, it would have been recorded by at least a dozen historians.

Voltaire made only one mistake: he neglected to wonder how, without those plagues, Moses succeeded in making Pharaoh withdraw his refusal to let his largest labor force, the Hebrew people, leave his kingdom. Did Moses, in a "magicians' duel" behind closed doors, demonstrate to Pharaoh's priests that he was able to unleash plagues that they were powerless to counteract? Until we have information to the contrary, that is the only rationally acceptable explanation.

But another question arises: after leaving Egypt as a fugitive under sentence of death, how did Moses find—in a desert—knowledge that enabled him to return with impunity and force his will on Pharaoh?

The Biblical text, attributed to Moses, says that Moses was guided to a burning bush from which the voice of the Elohim came to him. Are we to deduce from this that a flying saucer had brought Celestials to help Moses? The idea is so unlikely that it can be dismissed as a real possibility. If Moses had been directly aided by Celestials, they would have taught him, at the very least, to make gunpowder and firearms; instead of his elusive "magicians' duel," he would then have staged a spectacular attack that would have ended with the Hebrews in control of the whole civilized world.

If we are to remain within the limits of rationality, we must conclude that Moses found theoretical knowledge in a Tradition that was probably of extraterrestrial origin, in the form of texts which he interpreted to the best of his ability.

When Moses fled from Egypt, did he take with him something he had stolen from the priests of Ammon, perhaps a magnetic needle or a device similar to a Geiger counter, which enabled him to find a magnetic or radioactive marker that had been

left to indicate the place where texts originally given to Noah had been hidden? There is certainly no direct evidence for such a "novelistic" idea, but, as a hypothesis, it provides a rational explanation of the known facts.

Several centuries before Moses was born, Egypt had ceased to be safe from invasion. The Pyramids, built more than a thousand years earlier, could no longer be used as "strongboxes" in which valuable objects could be kept with absolute security. The Egyptian priests had a Tradition, composed of texts and documents about which we know nothing except that they existed and were regarded as a heritage left by the Celestials.

Caution dictated that the documents should be transferred from the Great Pyramid to a hiding place in the desert marked by some sort of "burning bush."

Moses was born several centuries after that transfer. Were several centuries enough to empty a religion of its original substance, to divide the Egyptian priests into two factions, each devoted to a different ram god, with the Ammon faction accusing the Khnum faction of "reactionary fundamentalism," while the Khnumites accused the Ammonites of "modernism"? I do not know, but when I read my daily newspaper . . .

In the Midian desert, Moses found the documents of the Tradition and either hid them elsewhere or put them back in their original hiding place, if he was certain that Pharaoh's priests could not find them there. Then he returned to the priests and threatened to use his newly acquired knowledge against them. The threat was sufficient: Moses and the priests spoke the same language of initiates.

There was a similar encounter in recent times, when Kennedy and Khrushchev were in conflict over Cuba: when the American "magicians" had told their Soviet counterparts about the plagues they could bring down upon the Soviet Union, and the Soviet "magicians" had described the plagues they could bring down upon the United States, the two sides came to an agreement that included the withdrawal of Soviet missiles from Cuba.

Let us go through Exodus point by point.

In the first chapter, we have a description of the situation in Egypt after Joseph's death: the Hebrews have lost their privileged position. Chapter 2: birth and adolescence of Moses, and his flight to the Midian desert to escape a death sentence. Chapter 3: Moses finds the burning bush in the desert. Chapter 4: Moses is demoralized by doubts when he has seen the Lord of the Celestials "appear to him," just as Pythagoras "appeared" to Descartes ("I saw Pythagoras appear, holding his open book"). When his doubts have been allayed, Moses goes to speak to the Hebrews, who accept him as a prophet.

In Chapter 5 he speaks to Pharaoh and leaves him after an almost total failure—except that Pharaoh says nothing about the death sentence that was the cause of Moses's flight from Egypt, and the subject is never mentioned afterward. In Chapter 6, another failure: Pharaoh refuses to acknowledge the Celestials of the Hebrew people. He has his own Tradition, which he regards as the only valid and legitimate one.

In Chapter 7, we enter a new phase: Moses becomes "like a god for Pharaoh." Since the text is attributed to Moses himself, we can only compare this "promotion" to the coronation of Napoleon, who placed the crown on his head with his own hands.

Like Napoleon, Moses still has to prove that he is worthy of his new title. In answer to a challenge by Moses, Pharaoh summons his "wise men and sorcerers," who match Moses, "miracle" for "miracle." The encounter ends in a standoff. Moses returns to the Midian desert to improve his knowledge by studying the texts of the Tradition.

The "plagues" begin in Chapter 8. They all follow the same pattern: Moses returns from the desert, explains his plague, fails to convince Pharaoh, and goes back to the desert for further study. This continues until the end of Chapter 12, where we see the sons of Israel leaving Egypt. Moses has won.

The Egyptians' first-bom were "killed" to force Pharaoh to let the Hebrews leave Egypt in the same sense that Soviet cities were "destroyed" to force Khrushchev to withdraw his missiles from Cuba; in both cases, threats of "plagues" stated in language that was "esoteric" to the uninitiated were enough to achieve the desired result. In modern language, Moses successfully used a deterrent force.

AN INVENTORY OF DREAMS

This Novel of the Bible may give the illusion that I am taking the reader far beyond the limits of the possible and the rational, and even beyond anything worthy of being admitted into an honest man's dreams. But reading a few reputable works of scientific popularization will be enough to show that I am very timorous, that I have stopped far short of the limits accepted by qualified scientists.

The apparent rashness of my hypothesis comes only from the fact that it seeks to build a coherent whole with data that usually remain scattered among various specialized disciplines. There was an analogous situation in the eighteenth century, when nearly all the elements needed for the invention of the phonograph were present: the laws of acoustics were known, techniques for treating wax had been developed, and spring-operated mechanisms had been brought to a high degree of sophistication. All that was lacking was a madman to propose a wild hypothesis.

When Dr. Edward L. Tatum, winner of a Nobel Prize, states that in the foreseeable future "genetic surgery" will be able to modify the genes of a species, create new forms of living organisms, and even modify man, the interest he arouses in the general public is on the same level as the interest aroused by a science-fiction story: it all seems abstract and remote.

When scientists discuss possible means of interstellar travel, the average man begins dreaming about what his grandchildren will see. When a comparison is made between today's champion milch cows and their wild ancestors, which gave barely enough milk to feed one calf, it seems perfectly natural that it should have taken thousands of years of patient selective breeding to produce a modern champion.

When physicists speak of modifying climates, we begin dreaming of vacations with no risk of bad weather; when geologists describe the ice ages of the past, we feel thankful j that we were born now, rather than twenty-three thousand years ago.

The hypothesis I am proposing in this book simply brings all those things together and forms a coherent whole: two-legged mammals, regarded as "gods" by men, j came from a planetary system more advanced than our own, arrived on earth during the Wiirm III glaciation, and began by establishing an acceptable climate and a satisfactory biological equilibrium.

My hypothesis leads to a simple choice: either man is a miracle, unique in the universe, and in that case the universe is a humanistic universe; or intelligent bipeds are a normal product of evolution on all planets where conditions permit the appearance of life as we know it on earth.

The fundamental simplicity of the choice is masked by the fact that the hypothesis is based on rational reasoning (which religious believers reject) applied to the Bible (which devout rationalists reject).

My hypothesis is a hypothesis: I do not by any means rule out the possibility that I may have been misled by coincidences, that I may have seen coherence where there is actually nothing but chance.

If my hypothesis is disproved, religious believers will take possession of the Bible again. I will no longer have any grounds for mamtaining that it constitutes a rational account of a colonization, and rationalists will have to seek a better explanation than mine for all the concordances between the Biblical text and modern scientific knowledge.

Professor Joshua Lederborg of the California Institute 180 of Technology believes that within ten to twenty years biologists will be able to implant human cells in the genetic structure of apes in order to obtain hybrids. He does not advocate such experiments; he states his fear that they may be carried out before we have sufficient theoretical knowledge to foresee the consequences of imprudent "genetic tinkering."

Will we, in the near future, "form an ape in our image," as the Bible tells us that the Adonai of the Elohim formed an adam in his image?

Did the biologists of Eden make a woman give birth to a boy and a girl who were genuine twins, then make those twins produce another pair of twins, and so on, in order to obtain a genetically homogenous breed, an eternal lineage of immortal adamsl The experiment is already theoretically conceivable at the level of apes, and it is one possible interpretation of the "male and female adam" in the Bible.

It is logical to give a single name to the husband, his wife-twin-sister and the children who are biologically their twin brother and sister. When our biologists have become capable of systematically making apes give birth to genuine twins, and of verifying their genetic stability at the level of the genes themselves, it is probable that they will "create" an "immortal" lineage in which (if they have an irreverent sense of humor) they will call the males Ish and the females Ishshah.

Is chance, aided by my imagination, enough to make the Biblical text consistent with the most advanced possibilities of modern biology?

Chance is capable of many things, but we have seen that it is not adequate to explain the appearance of the eye in mammals, which ultimately evolved from minerals, with plants, earthworms and coelacanths as some of the intermediate stages.

You, I, the neighbor's dog, and the steak I ate for dinner have one thing in common: we all evolved from the same minerals.

Until Darwin, that evolution was attributed to God; after Darwin, it was attributed to Natural Selection. To the biology of today, Darwinian Natural Selection seems to be an avatar of God, one more vain effort to explain the unknown by a capitalized Unknowable. Let us return to Emile Guyenot: "Mutations, the only known evolutionary process, nearly always correspond to phenomena of regression or repetition. [. . .] Not one of them has ever produced a new organ. [. . .] For a bird, loss of wings is a calamity; it takes a singular mentality to see it as an adaptation to life on the ground."

What do we have to replace Darwinian theory? We have what Guyenot calls "the unknowns of transformism": a "surface evolution," which is certain because it takes place before our eyes, and an "Evolution in depth," which rests on no direct proof but constitutes the only rational interpretation of the established facts concerning families, such as the family of the Equidae. Beyond that, we fall into the hypothetical: "Phyletic reconstructions are legitimate, to a certain extent, only if one believes in a common origin of all living things." With regard to the appearance of the [eye, "the mutationist explanation comes up against a veritable impossibility." The major stages of evolution escape us entirely.

Darwin's succession is open.

The problem of that succession is cogently stated by Raymond Ruyer in his book *L'Animal, l'homme, la Fonction Symbolique*: "In their efforts to explain the presence of man in the universe, philosophies and religions always turn in the same circle. The number of possible viewpoints is strictly limited. So limited that it is scarcely an oversimplification to say that they are ultimately reduced to two, which can be characterized as the 'mythological explanation' and the 'magic explanation.' These two types of explanation—or pseudo-explanation—are endlessly transposed, dissimulated, and often combined in various dosages. But they always recur, even in interpretations of the most recent scientific theories."

The "magic explanation" is exemplified in Albert Ducrocq's *Le Roman de la Vie*: the eye appeared "by itself," as a consequence of "natural cybernetics" and so did man. The "mythological explanation" is exemplified by the hypothesis I am proposing. "Scientific theories bring us back to myths, rather than magic," writes Raymond Ruyer, and after a survey of myths contradicted by scientific knowledge, he concludes that the most satisfactory myths are those that are "based on the idea of an 'education' of man, according to a transcendent plan."

Darwin's succession is open. I am not putting myself forward as a candidate for it, I am simply pointing out that in one interpretation of Pythagoras's teachings (which have a mythological basis), we find what Arthur C. Clarke has set forth in his novel 2001: A Space Odyssey, namely, the idea of a "seeding" of inhabitable planets with "crystals" to assure the "major stages of evolution" on a galactic scale, just as, on the laboratory level, our biologists cause breaks in the evolution of bacteria by "seeding" them with viruses, which are a kind of "crystal." (There is nothing of all this in the film version of 2001, which is very beautiful; one must read the book, which has a meaning.)

This idea of "seeding" inhabitable planets is very attractive: it provides a possible explanation of the "major stages of evolution." Emile Guyenot stresses our total ignorance of them and specifies that they include, among other things, "the acquisition of rudimentary wings by a wingless ancestor of the insects, or rudimentary limbs by an ancestor of the vertebrates," to say nothing of the appearance of the eye. Unfortunately the idea also has a drawback, serious enough to dissuade me from trying to become Darwin's successor: before explaining anything by seeding, one should first prove the existence of the seeders—not the small group of adventurers who appear in the Bible as gods, but an organization on the scale of our entire galaxy, at least.

I owe it to the truth to say that the behavior and, to a certain extent, the words attributed to the Celestials by the Biblical text give reason to believe that those Celestials (if they existed) came only to forge a link in a "spiritual chain" whose existence implies a rational and rationalistic organization on a galactic scale. The existence of a galaxy-wide organization would also explain other things, notably the elusive "flying saucers."

Let us put ourselves in the place of the members of such an organization. How would we go about determining whether rational species had yet appeared on planets where we seeded evolution billions of years ago? By visiting all of the hundred million planetary systems where the appearance of life is considered probable? Of course not! Why should we become involved in such a traveling salesman's nightmare? We would investigate by means of probes.

When, between 1950 and 1960, a number of American scientists considered probing the universe in this way, they proposed radio transmissions of the Pythagorean theorem, which would be recognizable by any civilization that had reached the stage of geometry, provided it had also invented radio astronomy and was listening on the wavelength that our earthly logic considers the most probable for interplanetary communication.

Following the same principle, when we install astronomical observatories on the moon from which we will be able to see the planetary systems of other stars, we will also install lasers powerful enough to reach other inhabited planetary systems. We will thus "draw," with the luminous "pencil" of a laser beam, the data of the Pythagorean theorem, which will appear in the sky of the target planet in "orthotenic lines," to use the term coined by Aime Michel in describing the straight lines formed by plotting a series of successive "flying saucer" sightings on a map. We will also send projections with a sophisticated version of the magic lantern, and if intelligent

beings, knowing the shape of our galaxy, see the image of that galaxy projected in their sky, we can be sure that they will not mistake it for a "flying saucer." They will try to determine the direction from which it was projected, and do their best to acknowledge receipt of the message.

I would rather repeat myself than risk being misunderstood:

- 1) I have never asserted that astronauts came to our planet at sometime around 21,000 B.C.
- 2) I have never even asserted the physical possibility of an interstellar journey like the one I have suggested.

But: I do assert that the Biblical text, read as I propose, relates the arrival, stay, and departure of astronauts.

I think that Genesis reflects a historical truth and that the "bow of the covenant" is waiting for us in a lunar crater used as an installation by "my" Celestials. It goes without saying, though I will say it anyway, that if the "bow" exists, its location is marked by some sort of "burning bush," since the Bible states explicitly that it is a concrete indication of a "covenant" and, according to my interpretation of the text, it is the stake of Noah's "bet," to be collected on the moon when man has succeeded in building a "tower with its top in the heavens."

If the "bow" of my hypothesis is found on the moon, it will reveal nothing mystical, no kind of abacadabra to be preserved in hidden sanctuaries by a conspiracy of secrecy. If "my" rational and rationalistic Celestials left a "bow" in a lunar crater, as I think they did, its discoverers will find scientific information, written in Hebrew, that will set off a prodigious leap of progress in all our sciences, particularly physics and biology, thereby enabling men to equal the gods. The discoverers will not necessarily place their discovery at the disposal of the United Nations, but once they begin to make use of it, there will be no possibility of their concealing the fact that something has abruptly propelled their science and technology into a radically different era.

I will ask Wernher von Braun to "give" me the conclusion of this book in the same sense that the Lord of the Celestials may have "given" Moses his conclusions: since von Braun's latest book, *Space Frontier* (Holt, Rinehart and Winston), was published in 1967, it contained answers to my questions before I had formulated them.

The last section of the last chapter of *Space Frontier* is entitled "Can We Ever Go to the Stars?" But before examining that question, let us first take a look at a map of the sky, in which distances are expressed in light-years (a light-year being the distance that light travels in a year). The diameter of our galaxy is a little less than 100,000 light-years; our solar system is 27,000 light-years from the center of the galaxy; Polaris (the North Star) is 470 light-years from earth; the nearest star, Alpha Centauri, is 4.3 light-years away.

Distances inside our solar system seem negligible by comparison: the sun is only

8.3 U^{xt}-minutes from the earth; Pluto is five and a half light-fours away; the moon is only one and a half light-seconds away. At a time when man has never traveled farther than one and a half light-seconds, can we seriously postulate journeys of a thousand light-years? Yes, says von Braun, provided we bear in mind that "hardware solutions are still entirely beyond our reach and far, far away."

Von Braun naturally envisages interstellar travel as a development growing out of our present knowledge, just as our space capsules have evolved from the airplane of Clement Ader, who in 1897 made the first flight (300 meters) in a heavier-than-air craft.* Von Braun does not envisage a planetary system that solidified a million years before ours, where life appeared and evolved at the same rate as on earth, where a Clement Ader flew 999,900 years ago, and where interstellar travel was achieved a relatively short time later. Among the hundred billion stars that make up our galaxy, a hundred million are sufficiently similar to our sun to justify the assumption that they have planetary systems comparable to ours. And in those hundred million systems it is likely that there are planets similar enough to our earth to have intelligent bipeds living on them, breathing and eating as we do, and asking themselves the same questions. It is as difficult for us to conceive of that as it was for our ancestors to conceive of people living on the other side of the earth. But if that were the only difficulty . . .

Von Braun's concept of interstellar travel involves a photon rocket (which exists only in theory) capable of a continuous acceleration of one g. ("G" designates the acceleration produced by the force of gravity at the surface of the earth.) After three and a half months of travel, the photon-powered spacecraft will be moving at thirty percent of the speed of light. The Doppler effect will then make the light from our sun pass into the infrared portion of the spectrum, and the sun will become invisible. A month later, the target star will also become invisible, as the Doppler effect makes its light pass into the ultraviolet. (The film 2001 gives a striking illustration of the Doppler effect from the viewpoint of astronauts approaching the speed of light in continuous acceleration.)

The ratio between the speed of a moving object and the speed of light is called the Einstein Number. According to the theory of relativity, no object can reach the speed of light without disintegrating. After 6.6 years of traveling with a continuous acceleration of one g, however, our

* In France, Clement Ader (1841-1925), a Frenchman, is generally believed to have made such a flight six years before the Wright brothers. (Translator's note.)

photon-powered spacecraft will have reached an Einstein Number of .999998. It will now be time to turn the craft around and use its propulsive force as a brake to produce a continuous deceleration equal to the acceleration of the first part of the journey. After 6.6 years of deceleration, the craft will begin its final approach to the star that is its destination.

In von Braun's example, the destination star is a thousand light-years from earth. "If we had a telescope powerful enough to observe events from our new vantage point," he writes, "we would find our home planet very much as it was when we left it. But, being one thousand light-years away, we are actually watching events that happened

on earth one thousand years ago. (This is the nondilated time that has elapsed on earth since we left.) The amazing thing is that, due to the time dilation aboard our speeding rocket, we have aged only 13.2 years during our outbound voyage.

"Eerie as this may sound, it is all in perfect harmony with modern ideas of the laws of space and time. (Men today have the same difficulty in accepting the concept of relativistic time that our ancestors had in seeing how people "down under" in Australia could walk head down without dropping off the globe. But that is because our experience does not include very great distances and extremely high speeds.)"

Because of this "strange effect," it is "possible for a stellar astronaut to travel from the earth to a fixed star a thousand light-years away in what he would think was 13.2 years. For the trip back he would need another 13.2 years. If he didn't spend any additional time at his destination he would thus have been away from the earth for 26.4 years. The trouble is that, during his absence, more than two thousand years would have elapsed on earth. Thus, upon return, he might wind up in a zoo."

In short, interstellar travel is perfectly conceivable. Our descendants will begin, of course, by traveling to the nearest stars. They will draw general laws from a comparison of several different planetary systems. Eventually they will formulate the Single Law of the Universe, from which the previously discovered laws are derived, and, in photon-powered spacecraft, they will go off to verify their theories in planetary systems five hundred or a thousand light-years away.

That is the future as seen by scientists who accept the humanistic postulate, that is, who reason on the assumption that man has discovered everything by his own means, beginning with the first wrinkle in the brow of the primitive man who had the first idea ever formulated on this planet. In the future as it is conceived by humanists, man will colonize the cosmos.

Is man a unique case in the universe, a result produced by pure chance? It takes a great deal of arrogance to think such things, but humanists are not noted for their humility.

An alternate view is that the appearance of intelligent life on earth was not a unique, chance occurrence, but only one instance of a general law of the universe. In this view, which at least has the virtue of being more modest, each inhabitable planet that soUdified before ours has already produced its own von Braun, and his descendants have already achieved interstellar travel, as our von Braun expects his descendants to do.

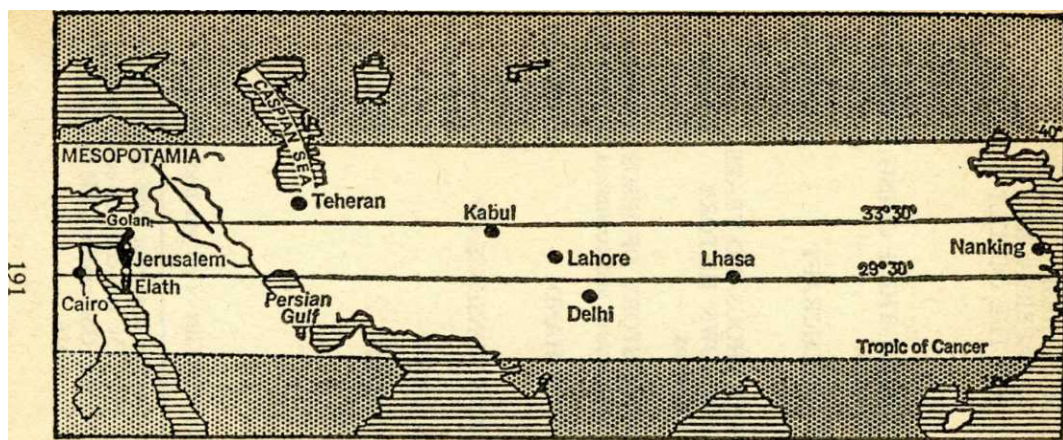
Did thirty descendants of the von Braun of the planet Theos, perhaps a thousand light-years away, make an interstellar journey that brought them to our earth twenty-one thousand years before Christ? Genesis describes the arrival, activities and departure of such astronauts; Voltaire and the nineteenth century would have rejected the idea of their existence as medieval nonsense; von Braun has demonstrated the theoretical possibility of a journey like theirs.

Can that theoretical possibility become a practical reality? If so, will astronauts from earth be the first bipeds ever to colonize a planetary system beyond their own?

Does Genesis constitute a prophecy based on no historical reality?

If "my" Celestials did not exist, if Genesis is the work of visionary poets, those questions will not be answered in our lifetime.

But if "my" Celestials did exist, we may have the answers even before the discovery of the "bow of the covenant" promised to Noah, even before interpretation of the information contained in that "bow" has given us the key to interstellar travel: the discovery of the slightest manufactured article on the moon will prove, pragmatically, that von Braun was right to believe in the possibility, for a civilization more advanced than ours is now, of reaching distant stars. The slightest artifact found on the moon will be enough to prove that the Bible is not fiction, and that, as Genesis says, the "gods" did "create" heaven and earth.



Jerusalem, Ur (Mesopotamia), Lhasa (Tibet) and Nanking are all located in the strip of land marked off by Abraham's Promised Land. (See Chapter 14.)

We know it as Genesis. Others knew it as the Myth of the First Civilization.

BUT IS THIS MYTH OR SCIENTIFIC HISTORY?

If life has been seeded throughout the galaxy, spread from planet to planet by cosmic travelers, then maybe these were not gods at all—and we are only one link in a great chain . . .

And man's coming exploration of space will lead us to planets where we shall be as gods!