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THE RELIGIOUS IMPLICATIONS OF EXTRATERRESTRIAL LIFE

by

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The revolutionary upheavals of the space age have shaken the belief in the centrality of man — historically, one of the most cherished doctrines of Western religious systems. To what extent the possibility of life on other planets affects basic tenets of Jewish theology is examined here by Rabbi Lamm, founder and first editor of TRADITION and now a member of its Editorial Board. The author of this study is Associate Rabbi of The Jewish Center in New York and visiting assistant professor of Jewish philosophy at Yeshiva University.

THE RELIGIOUS IMPLICATIONS OF EXTRATERRESTRIAL LIFE

A Jewish Exotheology

The existence of rational, sentient beings on a planet other than earth is no longer a fantastic, remote possibility conjectured by imaginative and unrealistic minds. It is declared not a possibility but a probability by an ever-growing chorus of distinguished astronomers and eminent scientists in all fields. Already there has been established a new science — “exobiology,” the study of forms of extraterrestrial life — although neither specimens of such living matter nor definite proof of their existence is yet available. The speculation of these men of science is that in many corners of the universe life has developed to a degree far higher than here on earth, so that — in the words of Walter Sullivan at the beginning of his splendid volume on the subject, *We Are Not Alone*¹ — “not only are we not central in the scheme of things, but we may be inferior, physically, mentally and spiritually, to more highly evolved beings elsewhere.”

Almost all descriptions of the current attempts to discover such extraterrestrial life are accompanied by exhortations about the profound implications for humanity's view of the universe and the need for theologians and philosophers to re-examine their doc-

trines. When the existence of life elsewhere is established, and especially if some contact is made with intelligent beings elsewhere, we will be confronted by as much of a challenge to our established way of thought as when the Copernican revolution displaced the earth from the center of the universe and set in motion a religious and philosophical upheaval that has but recently run its course. One of the most persistent advocates of a radically new philosophy is the famous Harvard astronomer, Harlow Shapley, who in 1918 located the center of our galaxy (the Milky Way) some 50,000 light years away. Shapley finds in the probability of intelligent extraterrestrial life "the intimations of man's inconsequentiality." Vannevar Bush, one of the world's most distinguished men of science, has already detected one of the resulting tendencies — a "new materialism" espoused especially by "young men."²

That this challenge must be met forthrightly and honestly is quite evident. It is unnecessary to belabor the parochial and provincial viewpoint that would shrink from pursuing it. Some religious thinkers have already begun to grapple with the problem. Much of what has been written by Christian theologians so far has been predictable and unconvincing. Apparently there has not yet been any serious Jewish thinking on the subject. This essay is a preliminary attempt at what might be called a Jewish "exotheology" — a religious conception of a universe in which man is not the only rational inhabitant.

I. THE SCIENTIFIC BACKGROUND

That the universe contains an enormous number of heavenly bodies was already known in ancient times. In the Bible, the expression for a very large number is "like the sand on the seashore" or "like the stars of the heavens." The vastness of astronomical distances, although not measured in terms of light-years, was also known before modern times. Thus, Maimonides (*Guide* 3:14) estimates the distance from the center of earth to Saturn as 125,000,000 miles. Nevertheless, the universe was considered closed, limited, and well-defined with the earth at dead center. In the sixteenth and seventeenth centuries, with the Renaissance,

The Religious Implications of Extraterrestrial Life

came the discoveries of Copernicus, Galileo, Brahe, and Kepler, and a century later the laws of gravitation were formulated by Sir Isaac Newton. The sun, not the earth, was the center of a world that had begun to open up. Then, in 1918, as the result of probing with powerful photographic telescopes, Shapley's findings displaced the sun as the center of the universe. The world as such is eccentric, or acentric (without a center); the center of our particular galaxy lies an enormous distance away from our solar system.

Now the estimated number of suns or stars in our galaxy, the Milky Way, is over 100 billion, many of them bigger but most smaller than our sun. Shapley estimates that there are about 100 billion galaxies in the universe containing, all told, more than 10^{20} (a one followed by twenty zeros) stars.³ Of these, approximately twenty percent are identical to our star, the sun, in size, luminosity, and chemistry. The Harvard spectrum catalogues note some 40,000 such stars in the nearby areas of the universe.

The question is, how many of these stars contain planets in orbits about them, as does our sun? No one has yet seen or photographed a planet of a star other than our own. However, the fact that our sun has planets means that it is likely that other stars do too. According to astronomer Frank D. Drake, the most optimistic reckoning would lead us to expect that a quarter of all stars not only have planets, but bear civilizations advanced enough to communicate with us. Shapley is much more conservative in his estimate. He argues that even if only one star in a hundred is a single star (the others are thought to be incapable of supporting planets), that of them one in a hundred has planets, of which one in a hundred are earth-like, of which one in a hundred are of the right temperature, and of which one in a hundred have a chemistry similar to that on earth, we still remain with about ten billion planets suitable for organic life. Less conservatively, he prefers to multiply that figure by a million. Stephen H. Dole, of the Rand Corporation,⁴ estimates the number of life-bearing planets in our galaxy at 640 million. Harvard astronomer Carl Sagan believes there are one billion planets in our galaxy that have developed advanced civilizations. Otto Struve, one of the greatest names in contemporary astronomy, in 1960 estimated

TRADITION: *A Journal of Orthodox Thought*

that there are about 50 billion solar systems in the Milky Way, a good many of these billions supporting intelligent forms of life.

Two years later, however, Struve was less optimistic, insisting that we must distinguish between the probability of a star possessing planets and the probability that such planets contain intelligent living organisms. Only a few dozen such stars are closer than twenty light years to us. "But the probability that any of them have intelligent life at the present time is vanishingly small. The probability that even if intelligent life now exists outside the solar system, but closer to us than twenty light years away, any artificial radio signals are reaching us now is even smaller. But it is not zero . . . the attempt to record such signals must be made."⁵

A. G. W. Cameron, of the National Aeronautics and Space Administration, is similarly inclined to a dimmer view of the uniformity of solar systems.⁶ The effect of his calculations is to reduce the number of life-bearing planets in the Milky Way from the billions to the millions, most of them quite distant.

The question of the proximity and number of solar systems is thus still not answered to our satisfaction. Indirect methods, such as analyses of stellar motion, have been proposed for such detection. In the not-too-distant future, orbiting telescopes entirely above the atmosphere, or even moon-based instruments, may be able to photograph planets in nearby solar systems — if such planets do indeed exist!

Despite the absence of immediately available evidence for such planets and for extraterrestrial intelligent life, most astronomers assume their existence in proportions that sound nothing less than fantastic. Shapley proposes a novel theory concerning the existence of life on bodies intermediate in size between that of a star and that of a planet, not having any sun about which to orbit. Myriads of these dark bodies abound in the universe, he maintains, supporting life by lightning and internal radiation. And Cambridge University's cosmologist Fred Hoyle speculates that an interchange of messages between planets of different solar systems is going on, on a vast scale, all the time, and that we are naïvely unaware of it. "My guess is that there might be a million or more subscribers to the galactic directory. Our problem is to get our name into that directory."⁷

The Religious Implications of Extraterrestrial Life

The Evolutionary Assumption

All of the above theorizing about extraterrestrial life is based upon one assumption: the natural evolution of life from inert organic chemicals. One hundred years after the seemingly conclusive victory of Louis Pasteur over Felix A. Pouchet, and the abandonment of the theory of the spontaneous generation of life, most scientists maintain that life was indeed generated spontaneously, and that, as Charles Darwin wrote, "The principle of life . . . [is] a part, or consequence, of some general law."⁸

Current biochemical research indicates that, given the right conditions, self-duplicating macromolecules will naturally evolve out of previously inert material. Two distinguished biologists, Aaron Novick and Joshua Lederberg, believe that "there is a good, rather than an unlikely, chance for life to develop on a planet like earth," for "spontaneous chemical processes would lead to the formation of many complex molecules." Electric discharges on gas mixtures similar in composition to what is presumed to have been the primitive atmosphere of earth give rise to amino acids, the basic stuff of all life; and further natural synthesis gives rise to nucleic acids, which are self-replicating structures. Such complex compounds, in the absence of any voracious organisms, would continue to breed other molecules identical with themselves out of this "soup," especially in the primitive oceans.⁹ Indeed, in 1957 Stanley Miller, working under the esteemed chemist Harold C. Urey, mixed water vapor with methane (a compound of carbon and hydrogen), hydrogen, and ammonia (a compound of nitrogen and hydrogen), and subjected the mixture to a powerful high frequency spark. After a week, he obtained several amino acids and other important organic (carbon-containing) compounds. Miller suggested — and the idea seems to have gained acceptance — that a hydrogen rather than oxygen-dominated atmosphere is the key to the natural synthesis of the organic compounds.

If the assumption about the primitive atmosphere of earth is correct, then one is led to conclude that the development of life is quite natural and not at all unique to earth. That this ideally suited atmosphere existed, that just the right molecules were

formed, that they by chance organized into a magnificent cooperative enterprise to produce self-duplicating macromolecules, that these joined together instead of competing with each other, and that they evolved the mechanics of heredity in order to possess the genetic systems to perpetuate — all this staggers the imagination and taxes credibility. It has been compared to the oft-cited example of the monkey randomly pecking at a typewriter. Given enough time, measured in the billions of years, he will eventually type all possible arrangements, and so produce — *Hamlet!* The key here is — “given enough time.” Geologists, calculating from the extent of radioactive decay in ancient rock formations, estimate the age of the earth, in its present form, at 4.5 billion years, and the emergence of life at 2.5 billion years. In other words, the incredible became not only credible but real in the space of two billion years.

Of course, man has not yet succeeded in synthesizing living material (defined as a self-replicating molecule). But, as Vannevar Bush avers, “there is little doubt that he soon will. Some very simple short-chain nucleic acid, synthesized from inert matter and placed in a chemical soup, will suddenly assemble accurate images of itself and the job will be done.”

The assumption is that if man can do it in the laboratory, Nature has done it by chance. Given the immensely long time of two billion years, the overwhelming odds against such random occurrence are severely diminished and natural biogenesis, or spontaneous generation, may have taken place.

There are other theories advanced about the origin of life which ought to be mentioned in passing. One of these is the “panspermia hypothesis” of Svante Arrhenius, according to which life originated on earth through the migration of spores to earth from some other planet. But this only defers the question of the origin of life to some other site. Another, equally fantastic notion advanced by J. B. S. Haldane in 1954, is based on the “steady-state” theory of the universe. Since the world, according to this theory, had no beginning, then life may be co-eternal with the universe, i.e., life always existed and also had no beginning.¹⁰ There are a number of other such theories, all of them (with the exception of the one just mentioned) assuming that life developed naturally

The Religious Implications of Extraterrestrial Life

from pre-living material.

The Historical Antecedents

Current speculation on extraterrestrial intelligent life is not exactly new. Both the astronomical ideas necessary for such life, and the conjecture itself about rational and sentient beings elsewhere, were known to antiquity. About 2500 years ago Anaximander proposed the idea of an infinite number of worlds, some in the process of being born and some dying. Two hundred years later another Greek, Democritus, inventor of the Theory of Atoms, elaborated the same idea in the context of his theory of the infinity of both space and time. A generation after Aristotle, Aristarchus already ventured a heliocentric conception of the universe.

In the sixteenth and seventeenth centuries, with the development of the new cosmography and the opening up of the limited, walled-in universe, speculation was rife about the existence of extraterrestrial races of intelligent beings superior to man. Kepler, Galileo, and Descartes entertained such notions and discussed them quite openly. Giordano Bruno, in 1586, concluded that there must be an infinite number of morally imperfect beings, like man, on an infinite number of worlds. Lovejoy, the great historian of ideas, has shown that this interest was not the result of the new scientific conceptions initiated by Copernicus and Galileo, but rather of the philosophic development of certain ideas implicit in Plato.¹¹

Thus, some three to four centuries before technology propelled us beyond the gravitational pull of the earth, scholars were already discussing the possibilities of races of intelligent beings on some planet in this or some other solar system.

However, never before has this speculation so gripped the entire scientific community and, indeed, all of mankind. Contemporary discussions of this matter are conducted not in idle terms or the language of imaginative science fiction, but in highly sophisticated scientific jargon, published in the most respected journals, and advanced by some of the most distinguished men of science of our times.

And What of Man?

The consequences of the possibility — according to so many scientists, probability — of extraterrestrial intelligent life are pressed upon us by most of those who have written about the subject. Astrophysicist Cameron, in the introduction to his anthology mentioned earlier, refers to the problem as “currently the greatest question in scientific philosophy.” Otto Struve, reviewing the theories and probabilities, including “the occurrence of water not only on the earth but on Mars and Venus” (this was before the Mariner 4 flight which found no water on Mars), concludes that we must review our thinking about mankind, and face the philosophical consequences of the statement: “We are not alone in the Universe.”

Most other scientists, departing from their chosen disciplines and donning the robes of the philosopher, are far less humble. Some, as has been mentioned, have enthusiastically adopted what Bush has called the “new materialism.” Harlow Shapley, eminent in his own domain, has gone further than most others. Suffering from what has been called “the fallacy of transferred authority,” Shapley has declared that “we are peripheral,” has found “intimations of man’s inconsequentiality,” and has proceeded to recommend a philosophy which will attempt to guide man in a universe in which he is, essentially, a nobody. Drinking deeply from the heady wines of amazing hypotheses and fascinating theories, most of them not proven, a number of scientists have become intoxicated with the sense of their own unimportance. Never before have so many been so enthusiastic about being so trivial.

For the purpose of keeping a proper perspective on what is heralded as the newness of the philosophic revisions and religious reconsiderations necessitated by these new conceptions, it should be recalled that even before the Space Age, and independent of the speculations about extraterrestrial intelligent beings, the modern world has largely dispensed with man’s significance. Jacques Barzun has traced to Frances Bacon the root idea which colors all modern thought and feeling, both scientific and unscientific: the idea of the irrelevance of man. Purpose, according to Bacon, is a human invention and does not correspond to any aspect of the

The Religious Implications of Extraterrestrial Life

nature of the universe. Objectivity is obtained in science by recognizing that phenomena are without purpose.¹² Modern thought, from scientism to existentialism, has banished teleology and reduced man to a purposeless and insignificant blob of protoplasm. But whether all that is modern is necessarily true is, of course, an entirely different question.

It Is Earlier Than They Think

The enthusiasm of space scientists for their craft is of course admirable and even enviable. That is at it should be. However, this very excitement should by and of itself recommend caution both to the specialists and to the general public. A Nobel prize is no guarantee that the awardee is henceforth free from human error. More than once in the past have the wisest men of a generation been caught up in ardor and passion for certain ideas which seemed most plausible and which later, upon further reflection and examination, turned out to be follies. In our present situation, similarly, we must beware of over-familiarity with the fantastic and an over-zealous stretching of the limits of possibility. Exuberance and eagerness and the sense of great expectations can overwhelm the sober skepticism of even the most disciplined scholars and diminish the prudent judgment necessary for accuracy and truth.

That such lapses of judgment, the result of too much zeal and self-assurance, have occurred in the realm under discussion has been amply illustrated by two recent events.

On April 12, 1965, Soviet radio astronomers announced that radio emissions originating from a source listed as CTA-102 indicated the discovery of a "supercivilization," the intelligent beings of which were sending these messages to its neighbors in the universe. Knowledgeable American reaction was that, if this report was correct, "it could prove to be the most revolutionary event in human history."¹³ One day later, as is well known, the Russians withdrew their statement and, instead, declared only that the 100-day cycles of radio pulses on a frequency that had previously been suggested as ideal for interstellar communications were worthy of further observation.

TRADITION: *A Journal of Orthodox Thought*

Now these Soviet scientists were not children. They included Iosif S. Shklovsky, "one of the most brilliant theoretical radio astronomers alive" (according to Walter Sullivan) and author of a book on the subject published in 1962 by the Soviet Academy of Sciences.

Another disappointment for space enthusiasts came some months later. Almost all literature on the subject, immediately prior to the Mariner 4 close-range photos of Mars on July 14, confidently predicted the discovery of sufficient amounts of water on that planet to sustain life and, consequently, the actual existence of some forms of living organisms. The photos, however, revealed no signs of water action; and scientists have ruled out the possibility of the complicated processes of life occurring in any but a water medium. The possibility remains, of course, that the space-ship pass-by was coincidentally limited to a desert region, or that primitive forms of life exist below the Martian surface. Such conjectures will have to await an actual landing on the red planet; meanwhile it is most likely that our cosmic neighbor is a dead and desolate planet. What has been an almost universally agreed probability has turned out to be highly unlikely. The "scientifically startling" discovery, according to the scientist who acted as the spokesman at the White House conference announcing the photographs, "further enhances the uniqueness of the earth within the solar system."¹⁴

The nature of the subject lends itself to extravagances; indeed, the facts may prove to be amazing when compared to our customary conceptions. It is an inherent hazard of the subject that it becomes difficult to distinguish science from science-fiction. "They are exhilarating," Struve warns, "but at the same time dangerous." The general public, meanwhile, is asked to leap obediently from fantasy to fantasy, and little sermons are preached to the skeptics reminding them that Columbus' contemporaries did not believe him either. Exercising the same benefit of clergy which the scientists today enjoy, they admonish philosophers and theologians to discard, revise, and adjust their own thinking to fit into the patterns formed by scientists from as yet unproven hypotheses. There is a serious misconception, Dr. Bush writes in the *Fortune* article mentioned above, "that scientists can establish a complete

The Religious Implications of Extraterrestrial Life

set of facts and relations about the universe, all neatly proved, and that on this firm basis men can securely establish their personal philosophy, their personal religion, free from doubt or error." He then cautions against the exuberance that properly accompanies the great achievements of science, but that makes rash people come to conclusions — usually atheistic and materialistic — which they believe to be the inevitable and logical results of following the dictates of science. "... There is much concern over those who follow science blindly, or relapse into a hopeless pessimism. It is earlier than they think."

Not all of the theoretical substructure necessary for asserting with certainty the existence of extraterrestrial intelligent life has been proven conclusively. Much of it may well be proven in the near future — possibly between the time this is written and the time it is published — but, by the same token, much of it may very well remain hypothetical, and some of it shown to be wrong. Thus, for instance, the question of planets in other solar systems depends largely upon the manner in which the planets around the sun were formed. There are essentially two rival theories to explain this origin, both from the middle of the eighteenth century. George-Louis Leclerc proposed the collision hypothesis: a very large comet struck the sun and knocked off the chunks that became the planets. A decade later, Immanuel Kant envisaged the primordial universe consisting of gases that condensed into blobs of higher density; each mighty blob became a solar system, spinning about till the inner core became a star and the outer cores formed planets. This, of course, is stating the theories very simply and crudely; they have undergone many sophisticated modifications. Now the difference between the collision and nebular theories is this, that, according to the former, solar systems are very rare, for a hit or even near-miss of the sun by a large star is a freak accident in the vastness of space; whereas, according to the nebular theory, solar systems are common throughout the universe. Hence, since extraterrestrial life requires the existence of planets, such life can be postulated only if the nebular rather than the collision theory is accepted. Cameron, in his anthology, reviews the situation and concludes that most contemporary theories envisage a nebular rather than a collision origin — most, but not all. The question

TRADITION: *A Journal of Orthodox Thought*

has not been finally settled. At a conference in January, 1962, of the Institute for Space Studies of the National Aeronautics and Space Administration, objections were raised to each hypothesis by leading protagonists of the several different views. There may, then, be a majority view and even a developing consensus, but there is not yet an established fact about a fundamental prerequisite for extraterrestrial life.

The Biological Premise

One may question further the biological presuppositions upon which is built the whole idea of life elsewhere in the universe. The naturalistic view has living matter evolving spontaneously from large, inert molecules. The first self-duplicating molecule begins its work of reproduction, its food supply is the almost limitless "soup" of the primitive oceans and, in the absence of voracious organisms, it grows rapidly until chance mutations give rise to new variations, and so on up the scale of evolution. There are several assumptions that underlie this picture of natural biogenesis. The leap from the simplest forms of self-replicating macromolecules to single cells and from single cells to more advanced organisms supposedly took millions of years. The existence and the flourishing of this "chemical delicacy" called life is assumed to have taken place because of an adequate food supply and the absence of organisms to prey on it. But is this all that must be taken into account? What of the normal decomposition process that runs counter to life's synthetic necessities? Does living matter, given sufficient food and guarded against trauma, live forever — for millions of years?

In addition, the entire process of spontaneous generation so envisaged is based solidly upon evolutionary theory. It is true that the overwhelming majority of scientists accept it. Yet — may the Guardian Angel of Science forgive my heresy! — not all questions have been answered. Not all the facts fit neatly into the evolutionary scheme. Some scientists do tend to accept creationism and catastrophism. Such a literature, skeptical of the official dogma, is spread about here and there. True, only a specialist may evaluate it properly. Yet it deserves to be mentioned and thought

The Religious Implications of Extraterrestrial Life

of in considering the chain of arguments necessary to conclude that extraterrestrial life does indeed exist.

Moreover, there are hard and serious questions that are being asked about crucial points in the entire line of development postulated between the rise of elementary self-duplicating molecules and the emergence of intelligence. At the bottom of the scale, the origins of life are being elucidated chemically, i.e., by synthesizing the nucleic acids from simpler substances, and then assuming that this is how the cell originated and works. Yet a number of distinguished biologists insist that we cannot understand the cell and how it evolved simply in terms of its constituents. Harold F. Blum of Princeton (quoted by Walter Sullivan) put it this way: "Clearly we should not try to describe an automobile by grinding up its various parts and subjecting them to chemical analysis, and we should not expect to learn all about the living machine by following, exclusively, a similar attack." Blum and George Gaylord Simpson, a Harvard paleontologist, are the major dissenters against the belief that life will emerge on a planet like that of the primitive earth. The development from single atoms to long-chain molecules is probable, but the next step — from macromolecules to a living cell — is so vast as to be extremely rare. Chemical combinations are comparatively simple and uncomplicated, and hence predictable; but as one comes to an object as immensely complex in its machinery and functioning as the organized cell, the outcome is much less deterministic and preordained. There are many alternate paths that development may take, and life is but one of them. (Here the religious person might ask: Is this, then, the way the Creator works within the natural laws He set down for the world He created — by opting amongst alternatives which He built into Nature itself?) The two scientists agree that even if there is life somewhere in the universe, it is unlikely that we can learn anything about it, even the bare fact of its existence.

At the top of the scale, Blum and Simpson doubt that intelligence is an inevitable result of evolution. The development of intelligence by chance required a long succession of extremely rare evolutionary "accidents" that were incredibly intricate and improbable. Even, therefore, if such a long chain of accidents

TRADITION: *A Journal of Orthodox Thought*

has been duplicated elsewhere in this galaxy, these intelligent beings are extremely distant and unreachable. Simpson has especially protested, on these grounds, the search for life beyond the earth.

Yet with all these dissents, speculation is rife, rampant, and at times utterly wild. We need note but one example: one writer in *Science* (April 13, 1962) has suggested that long molecules that are now being extracted from certain meteorites might have been placed there by an advanced civilization in the remote reaches of space and hurled at us in great numbers. These long molecules may contain a message in coded information. Hence, he suggests that we intercept comets in flight to see if they contain any messages for us! Apparently, the idea that improbable events become probable if given enough time means that all rationality should be banished because, quite literally, everything is not only possible but probable.

The Veil Over Genesis

The above views have been presented not because of any feeling that a hoax is being played on the public or that the scientific community is in the grips of a great delusion. Rather, they are mentioned in order to show that, contrary to the impression conveyed to the layman, there is no certainty or definiteness in the ideas being proposed by scientists concerning extraterrestrial intelligent life. What is a guess, even an educated guess, cannot and should not be put forth as the kind of "fact" which demands immediate philosophic readjustment and theological revision. Until such time as proof, in its fullest scientific sense, is forthcoming, it is premature to rush headlong into drawing profound and far-reaching philosophic conclusions.

Nevertheless, these exceptions having been noted, the fact remains that most of the highly respected scientists of our day, eminent in their fields, do believe that intelligent life exists elsewhere in the universe, and some of them believe that such life is close enough to us for communication. The credentials of these scientists are impeccable and the weight of evidence sufficiently convincing for us to take their conjectures seriously, despite any reservations we may have.

The Religious Implications of Extraterrestrial Life

No religious position is loyally served by refusing to consider annoying theories which may well turn out to be facts. Torah is "a Torah of truth," and to hide from the facts is to distort that truth into a myth. Of course, it must be repeated that the theories here under discussion have not (yet) been established as true. But they may be — and Judaism will then have to confront them as it has confronted what men have considered the truth throughout the generations.

Maimonides, over eight centuries ago, was faced with the widely accepted Aristotelian theory of the eternity of the universe, which ostensibly contradicted the Biblical conception of creation in time. Maimonides demonstrated that Aristotle had not conclusively proved the eternity of matter, and that since eternity and creation were, philosophically, equally acceptable alternatives, he preferred to accept creation since this theory was the one apparently taught in Genesis. Nevertheless, Maimonides averred, were the Aristotelian theory convincingly proven, he would have accepted it and reinterpreted the verses in Genesis to accommodate the theory of the eternity of matter.

It is this kind of position which honest men, particularly honest believers in God and Torah, must adopt at all times, and especially in our times. Conventional dogmas, even if endowed with the authority of an Aristotle — ancient or modern — must be tested vigorously. If they are found wanting, we need not bother with them. But if they are found to be substantially correct, we may not overlook them. We must then use newly discovered truths the better to understand our Torah — the "Torah of truth."

The integrity of Maimonides is in no wise diminished by his readiness, if persuaded of the correctness of the theory of eternity, to reinterpret Genesis so as to avoid a contradiction to this theory. Ostensibly, this is a case of playing fast and loose with Biblical verses, of taking the Bible as an infinitely plastic text which can be "interpreted" to yield any fore-ordained results. But this is clearly not so. No one acquainted with this great sage's halakhic and philosophic writings can possibly accuse him of casuistry or baseless homiletics.

Maimonides was referring exclusively to the first part of Genesis. The freedom of interpretation is far more limited in the legal

sections of the Bible, and in those parts dealing with actual history. What I am suggesting is that this first part of Genesis has always been accepted, in the Jewish tradition, as containing hidden doctrines, i.e., the text was never meant to be taken as a literal history. It was, as it were, meant to be interpreted and re-interpreted. Thus it is that this part of the Bible, known in the Jewish tradition as *Maaseh Bereshit*, was always considered as esoteric, containing mysteries that lie buried deep within the text and that can be revealed only to the initiated. Hence, if the literal reading of this portion of the Torah contradicts what reason tells us to be the truth, it means that we have not properly understood the divine teachings and must return to the sacred text and probe deeper into it in order to discover what is, after all, a single and unified truth.

A modern Jewish sage, the late Rabbi A. I. Kook, first Chief Rabbi of the Holy Land, takes this position explicitly. "The Torah," he writes in an important letter, "has certainly veiled the story of creation (*Maaseh Bereshit*) and spoken in hints and parables. For everyone knows that *Maaseh Bereshit* is part of the 'secrets of the Torah,' and if all these words (in Genesis) are meant to be taken literally, what 'secrets' are there? . . . What is most important is the knowledge that emerges from all this: that one must know God and live a truly moral life . . . But we do not have to accept theories as certainties, no matter how widely accepted they are."¹⁶

This position, espoused both by Maimonides and Rav Kook, is worthy of acceptance and emulation. It is the kind of attitude that religious Jews, who wish to live and participate fully in the modern world, can adopt with dignity. It includes both the acceptance of all modern knowledge, with a healthy skepticism of popularly acknowledged "truth," and an abiding faith in Torah, together with inward-directed skepticism which does not allow us to seal the teachings of Torah with a finality of our own making, but which keeps us humbly aware of the majestic mysteries that unfold from the sparse words of God before us.

It is in this sense that an evaluation is here undertaken of the religious implications, for Jews, of extraterrestrial intelligent life. Our approach will be more philosophical than exegetical; yet the

The Religious Implications of Extraterrestrial Life

theme of *Maaseh Bereshit* remains relevant. The grandeur of Judaism's insights has not yet been fully revealed, neither from the text of Genesis nor in the context of Jewish religious thought. God is greater than our finite thoughts about Him; and the mine of Judaism contains richer treasures than the ability of even the wisest of sages to excavate fully within the confines of one lifetime or even one historical epoch.

In this spirit we approach our problem: A Jewish exotheology, an authentic Jewish view of God and man in a universe in which man is not the only intelligent resident, and perhaps inferior to many other races. That such is the case — is yet uncertain. In Dr. Bush's words, "it is earlier than they think." But what indeed if these speculations should prove to be factual?

II. THE CHALLENGES

The major challenges with which Judaism is confronted by these new conceptions may be divided into three parts: the question of the uniqueness of man, the uniqueness of the Creator, and the relation between God and man.

The Uniqueness of Man

The first and most immediate challenge concerns the uniqueness of man in the universe. Man was created, according to the Torah, in "the image of God." How does this God-like creature relate to other, possibly superior, creatures elsewhere in the cosmos?

Man is deemed valuable by Judaism. Without the premise of man's inherent worthiness, all of religion is meaningless. God revealed Himself to man because he was deserving of such knowledge. But if man is not the only inhabitant of the world, and possibly but an inferior one, does he retain his intrinsic worth? And is he indeed significant enough to have had God revealed to him?

Jewish thinkers have often spoken of man as the purpose of creation. The Midrash, and the mystics especially, even into the nineteenth and twentieth centuries, have spoken of man as a

microcosm and have granted him far-reaching spiritual powers that allow him to influence the destiny of the cosmos. Can this hold true for a race of beings that inhabits a single planet of an off-center medium-sized star in one of billions of galaxies? Can man's life have any transcendent meaning in a world in which we have received, as Shapley put it, "intimations of man's inconsequentiality" which we prefer to ignore because "we cherish our stuffiness?"

The problem is not so much theological — for God is in no way diminished by our learning that His creation far exceeds what had previously been imagined — but anthropological, in the European sense of the study of man and his place in the world. Not our conceptions of God, but our conceptions of man, and — if we be permitted to say so — our conceptions of God's conceptions of man, are at stake.

The Early Sources

Despite the easy assumption that the Bible supports the idea of the primacy of man, it is not at all that certain. As a matter of fact, we find no sure judgments, only inclinations — and these can be made to support both opposing theses, that of man's centrality and that of his non-uniqueness.

It is true that the doctrine of man's creation in the divine Image bestows transcendent value upon man, lifting him out of the order of the purely natural; but this is by no means necessarily an exclusivist principle. It is quite possible that *homo sapiens* on this planet and other equivalent races elsewhere represent the interpenetration of the natural and the supernatural. Whether the idea of "the divine Image" is interpreted rationalistically as intelligence, or ethically as freedom of the will, or mystically as possessing creative powers, there is nothing in it (that is, in the Biblical doctrine *per se*) that insists upon man's singularity. The concept of *imago dei* does not impose a singular and exclusive quality upon all who possess it. All human beings are created in this divine Image, despite the fact that people are born unequal, some with superior endowments and some with a tragic poverty of both talent and opportunity. In the same manner, races of in-

The Religious Implications of Extraterrestrial Life

telligent beings that differ from each other as radically as an idiot from a great genius may both be impressed by the divine Image, by the summons to transcend the merely natural. If the Image of the Absolutely One God can be impressed upon the manifold individuals within the human race, it can be similarly bestowed upon a multitude of races.

Indirect intimations supporting the thesis of man's superiority can be balanced with indirect references supporting the anti-thesis. Thus, man's creation at the end of the six days, at the apex of an ascending order of creatures, implies man as the end not only chronologically but also teleologically — the purpose for which all the rest of creation was called into existence. But opposing this is God's majestic address to Job out of the whirlwind, which leads us from a consideration of the mystery and immensity of creation to an appreciation of man's triviality and his moral and physical and intellectual inadequacy.

Perhaps the best illustration of the difficulty of finding a single view in Torah is Psalms 8:4-9, where both the thesis and anti-thesis are presented together:

When I behold Thy heavens, the work of Thy fingers,
The moon and the stars which Thou hast established;
What is man, that Thou art mindful of him?
And the son of man, that Thou thinkest of him?
Yet Thou hast made him but little lower than the angels,
And hast made him to have dominion over the works of Thy hands;
Thou hast put all things under his feet.

Here a consideration of celestial grandeur points to man's insignificance; yet man's central worth is salvaged, and proof is adduced from his superiority over other terrestrial creatures. What we are given here is not a hesitation, an uncertainty, but a marvelous paradox. Man is both important and insignificant, central and peripheral, worthy and trivial. In the context of the vast cosmos, man shrinks almost into nothingness; in the framework of his own habitation he is supreme, worthy, terribly important. Both are true. The young man who leaves his home and family for the first time to make his lonely way in the wide world, experiences the same ambivalence about himself: in terms of his home and

family, he is of vital importance; in the outside world, he is unknown and ignored. It is only when he can retain his inner dignity even when apparently mocked by the indifference of the unfriendly world, that he has achieved maturity. Mankind today, on the threshold of this voyage to the far-out reaches of the cosmos, experiences the same paradox described by the Psalmist. But this denotes an existential predicament, not a philosophical position.

In the Midrash there appear a number of statements favoring a strong anthropocentrism. To cite but one example among many, God is reported as saying to man, "all that I have created has been for your sake; take care, then, not to spoil and destroy my world."¹⁷ This statement itself, however, reveals that the Midrash's conception of man's central role is not meant as a definitive metaphysical evaluation, but as a didactic device which makes use of hyperbolic homilies.

Somewhat more to the point are a number of statements, throughout the Midrashic and Talmudic literatures, concerning the existence of other worlds. Thus the Talmud (*Avodah Zarah* 3b) speaks of God roaming over 18,000 worlds, apparently confirming the idea of the plurality of worlds, an idea already entertained by the ancient Greeks. (Saadia Gaon, however, about whom more will be said later, interprets this passage as referring to successive rather than simultaneous worlds. In other words, this is the 18,000th world — an idea that accords with the well known Midrash [*Bereshit Rabbah* 3:9] that God builds worlds and destroys them.)¹⁸

Normally one would search first in the Halakhah and its pre-suppositions in order to derive an authentic Jewish *anschauung*. However, I do not believe this can be done in connection with our theme. As a system of law, or way of life, Halakhah is necessarily concerned with man and his earthly activity. As pre-eminent-ly the spiritual guide for human conduct rather than a metaphysical system or theosophical doctrine, the Halakhah must be man-centered. Its anthropocentrism cannot, therefore, be taken as a philosophical judgment. It would be astonishing indeed were we to find any reference in the Halakhah that might lead to a view of the world beyond earth man. "This is the law of man" (*zot torat ha-adam*) defines the scope of Halakhah: man.

The Religious Implications of Extraterrestrial Life

The Axle of the World

The most illustrious systematic exponent of anthropocentrism, the position under most direct attack by the assertion of the existence of extraterrestrial rational races, is the tenth century Egyptian-born R. Saadia, Gaon of the Babylonian Academy of Sura. The delineation here presented of Saadia's and Maimonides' philosophy of man is based upon the writer's article, "Man's Position in the Universe: A Comparative Study of the Views of Saadia Gaon and Maimonides," in *The Jewish Quarterly Review*, January 1965. The reader may refer to that article for a more elaborate and documented treatment of the subject.

For Saadia, man is nothing less than the "goal of creation" and "the axle of the world and its foundation." This anthropology is not a casual idea for the Gaon; it is an integral part of his whole outlook. For all his frailty, man is the condition of the world's existence; without him, the creation of heaven and earth would be an exercise in futility and all existence would be devoid of meaning. The centrality of man is meant, of course, in reference to the phenomenal world; in the larger, ultimate sense it is God who is the center and goal of all. But in the created universe, man is the *telos*, the purpose of all else.

Indeed, the superiority of man, indicated by his mastery over the rest of creation, reaches its full meaning in his ethical freedom. This capacity for free choice, and the gift of intellect — i.e., the whole range of human talents from the social to the scientific and technological — constitute the true eminence of man. This, in turn, makes him capable of being subject to divine command and prohibition.

Although absolutely inferior to the Creator, man is the crown of all creation, according to Saadia. Much to the dismay of Ibn Ezra and Maimonides, he maintains that the primacy of man holds sway over the entire range of the universe, even the angels. All is conditioned by man.

Saadia arrives at his conclusion of the superiority of man in the universe by his exposition of the centrality of the middle, i.e., that which is structurally or geometrically in the middle is of central value, of greatest worth. Observation of Nature, he avers,

strengthens this conclusion. Thus, the kernel lodges inside the fruit because it is more precious than the rest of the fruit. The yolk of the egg, from which springs the young fowl, is in the center. The heart of man is in the middle of the breast. Empirical observations, therefore, lead one to the generalization that "habit and nature place whatever is most highly prized in the center of things which are themselves not so highly prized."

Now the universe, according to the Ptolemaic model in vogue before and during Saadia's times, is geocentric; the earth is in the center and all else revolves about it. Hence, since the middle point is most precious, the superior creature for which all else was brought into being must be located on earth. Eliminating the inanimate and the irrational, we remain with man as "the goal of creation" and "the axle of the world."

This anthropocentrism of Saadia can be authenticated, as has been mentioned, by various passages in the Biblical, Midrashic and Talmudic literature. It also has Greek antecedents. The Pythagoreans and Plato, whatever the differences in the details of their astronomic conceptions, assert the superiority of the middle.

Saadia was the first to expound the superiority of man with such forcefulness and in such elaborate detail, but he was not the only one. One need only mention Yehudah Halevi and Moses Hayyim Luzzato as examples of Jewish thinkers, through the ages, who were profoundly influenced both by Saadia's anthropocentrism and by his theory of the centrality in value of what is structurally the middle. The Kabbalah, asserting an anthropological-cosmological equivalence, is especially powerful in its advocacy of the superior role of man in the world. This mystical doctrine is perhaps most forcefully developed by R. Hayyim of Volozhin in his *Nefesh ha-Hayyim*.

A Drop of a Bucket

Were Judaism the kind of religion that tended to adopt rigid dogma and official ideologies, the approach outlined above, espoused by so many leading thinkers, would no doubt have been enshrined as sacred dogma — and we would be hard put, in this second half of the twentieth century, to defend it in the face of

The Religious Implications of Extraterrestrial Life

signs of man's non-singularity in the universe. Fortunately, however, Judaism seeks clearly defined limits and a high degree of uniformity only in conduct, and prefers to reduce to a minimum the ideological postulates to which assent is demanded of the believer; thus the emphasis on Halakhah on the one hand, and the reaction against Maimonides' dogmatological endeavors on the other.

Even more fortunately, we have Maimonides, probably the greatest Jewish philosopher of all times, who takes a position diametrically opposed to Saadia's theory of man's superiority in the universe. Two centuries after Saadia, he proposed a philosophy of man which was not based on his superiority to all creation but, on the contrary, on his relative insignificance in the universe.

In his youth, Maimonides accepted the old Saadianic anthropocentrism. In his *Commentary on the Mishnah* he asserts that man is the purpose of all else, and only the limitations of his own intellect keep him from discovering the usefulness to himself of every object, animate or inanimate, in the world.

However, in his more mature years Maimonides abandoned his early espousal of man's central importance in the universe. Both in the early chapters of his halakhic code, the *Mishneh Torah*, and especially in his philosophical *magnum opus*, the *Guide for the Perplexed*, he completely dethrones man from his position of superiority over all the rest of creation.

Like Saadia, Maimonides agrees that geometric position has value-consequences. But unlike Saadia, he does not accept the centrality of the middle. On the contrary, the middle position for him is the low point, the bottom, the area of least value.

While Saadia was influenced by Plato (in addition to Jewish sources) in asserting the superiority of the middle, Maimonides followed Plato's student, Aristotle, in maintaining the exact opposite: the inferiority of the middle. "The most important and precious part of the world," Aristotle holds, is not the core but the "limit" or periphery. Now in keeping with the geocentric astronomy of those times, the earth and its inhabitants are quite the opposite of the glorious beings depicted by Plato and the Pythagoreans. For the medieval mind, under the influence of Aristotle, the earth as the center of the world was not a position of

honor. On the contrary, as Prof. Lovejoy put it, it was "the place farthest removed from the Empyrean, the bottom of creation, to which its dregs and baser elements sank. The actual center, indeed, was Hell; in the spatial sense, the medieval world was literally diabolocentric."

Apparently, then, there are two fundamental casts of mind, two *a priori* orientations, each opposed to the other. The first might be called the *centripetal* (i.e., tending towards the center) value-structure, with its roots in Plato, tacitly accepted in much of Jewish literature, and openly espoused by Saadia in validating his anthropocentric notions. The other may be called the *centrifugal* (i.e., fleeing from the center) value-structure, propounded by Aristotle and accepted by Maimonides. Working on the Ptolemaic conception of a geocentric universe, the centripetal approach leads one to consider man as the goal of all creation, while the centrifugal bias leads one to assert the inferiority of earth-man to whatever beings exist elsewhere, their worth increasing as one moves from the center outwards.

So pronounced are Maimonides' anti-anthropocentric views, that one modern commentator on the *Guide* believes that Maimonides considers anthropocentrism as one of three fundamental errors that prevent man from arriving at true conceptions, and that Maimonides geared the whole of the *Guide*, directly and indirectly, to a refutation of these errors.

Maimonides is thorough-going in exposing what he regards as the logical and philosophical weaknesses of the anthropocentric position. Things exist, he asserts, not for the sake of other things, but for their own sake, which is another way of saying that they exist because God willed their existence. All the universe, created before man, has therefore its own justification for existence; it cannot be declared to have been created only for man. For man, though superior, by reason of his intellect, to all other creatures on earth, is immeasurably inferior to the intellects that exist beyond earth. Maimonides does not intend, by this, an intelligent extraterrestrial race, but angels and the heavenly spheres which he considered as possessing souls and intelligence; nevertheless, the argument applies equally to any non-earthly intelligent beings.

The philosophical assertion of the absurdity of anthropocen-

trism is supported by Maimonides from a number of Scriptural texts. "The Lord made everything *le'maanehu*" (Prov. 16:4) is translated by Maimonides "for the sake of Himself," i.e., not for the sake of man. The refrain *Ki tov*, "it was good," repeated in Genesis after each major act of creation, means that the thing created accords with the object God had in mind when He called it into being; every created object has its own immanent purpose and cannot be considered to have been brought into existence for some external end, such as serving man. Maimonides quotes with approval the words of Isaiah (40:15) that "Behold, the nations are as a drop of a bucket."

This dethronement of man from his previous position of honor, this notion of man as but a drop splashed out of the cosmic bucket, does not in the least disturb the intellectual equanimity of Maimonides. Man's significance does not depend upon his superiority — and, we may add, his uniqueness. Man retains his intrinsic worth even if his hegemony extends merely over earth instead of all the cosmos and whatever spiritual beings they may contain. The reason with which man was endowed is sufficient to qualify him as the Image of God and it is this which is the source of his value. This reason, this value, this Image, makes man worthy of being addressed and commanded by God.

Man's intellectual endowments are sufficient to make him responsive to the divine command, to the whole of Torah. These rational gifts, fully developed by man in his pristine state before the sin of Adam, qualify man for the greatest imaginable ambition: the knowledge of God, both in its purely philosophic sense and in the sense of leading to man's moral life by means of *imitatio dei*. There is no need to exaggerate man's importance, and to exercise a kind of racial or global arrogance, in order to discover the sources of man's significance and uniqueness.

It is noteworthy that not only did Maimonides not feel it necessary to adopt anthropocentrism in order to strengthen the underpinnings of Halakhah (which does not take anything beyond man into consideration), but he discarded such a view of man in the very introductory chapters of his great halakhic code! Obviously, Maimonides held that the validity of the Halakhah does not require an anthropocentric presupposition.

TRADITION: *A Journal of Orthodox Thought*

Maimonides thus deflates man's extravagant notions of his own importance, and urges us to abandon these illusions. Two centuries later, Hasdai Crescas was to go one step further and refute the whole Aristotelian notion that the universe is composed of only one system of concentric spheres. With Crescas' idea of a large number of systems — according to Prof. Wolfson, an infinity of worlds — the whole anthropocentric argument proceeding from the structure of the universe collapses completely.

A Good Cosmic Address

We find, therefore, a development in medieval Jewish philosophy — and which lays claim to being an authentic exposition of Judaism — which rejects man's centrality in the universe, and, anticipating the orientation of so many modern thinkers, both scientists and non-scientists, considers him not "the axle of the world" but "a drop out of the bucket." It is philosophically irrelevant whether it is the angels and soul-possessing spheres or some far-off intelligent biological races to which man must yield primacy or at least share the universal lime-light.

It is of the *utmost significance* that this philosophical anthropology which denies cosmic superiority to man was proposed and espoused by a man who in no way whatever considered that this theory contradicted his cherished notion of man's significance as a God-like creature or his worthiness of divine concern (revelation and Halakhah). It is important to emphasize this point because it apparently is lost on most of those who have ventured into the philosophical consequences of what they consider the imminent discovery of extraterrestrial life.

Man's *non-singularity* does not imply his *insignificance*. Metaphysical dignity is not part of a numbers game; there is nothing in logic or philosophy that insists upon it being in inverse proportion to the number of beings who participate in it.

Judaism, therefore, can very well accept a scientific finding that man is not the only intelligent and bio-spiritual resident in God's world. But Judaism cannot draw the premature and utterly misleading consequences that some already have done. Man's non-singularity does not contain, contrary to Shapley's self-assur-

The Religious Implications of Extraterrestrial Life

ance, "intimations of man's inconsequentiality." It is not because we "cherish our stuffiness," but because we cherish the cosmic meaningfulness the Creator impressed into all parts of His vast creation that we affirm our faith that God is great enough to be concerned with *all* His creatures, no matter how varied and how far-flung throughout the remotest galaxies of His majestic universe.

Shapley, and those who have followed him into the "new materialism," are profoundly mistaken not only when they naively assume a direct relation between the number of intelligent races and the intrinsic value of each, but even more so in assuming that the displacement of man and his solar system from the geographical center of the universe implies his metaphysical marginality and irrelevance. One may accept, for instance, Saadia's anthropocentrism or Maimonides' opposing view, but modern men need not accept the medieval methodology which assigned values — either high or low — to structural positions. Such concepts disappeared with the collapse of Ptolemaic geocentrism. Yet in his anxiousness to prove man's spiritual inconsequentiality by pointing to the insignificance of his locale in the cosmos, Shapley reveals his medieval bias: that geography determines metaphysics.

Surely we deserve more enlightenment and more sophistication than that from those who miss no opportunity to press upon their fellows the need for philosophical adjustment and revision. We have seen, in the case of Saadia and Maimonides, how the same assumption — of the relation of value to position or structure — can be interpreted in diametrically opposed directions. The same philosophical positions can be maintained without recourse to the structure-value argument, whether in its centripetal or centrifugal forms.

It matters little whether the globe we populate stands at dead center of the Milky Way, which in turn is at the very center of all the billions of galaxies, or whether we are residents of but one planet of a star that is 50,000,000 light years off-center in a galaxy which is itself in only one of billions in a remote corner of the magnificently spangled heavens. By way of analogy, the brilliant and saintly R. Elijah of eighteenth century Lithuania

gained immortality not because he was the mayor of Vilna who lived in an opulent official mansion in the center of the city, but because he was the Gaon of Vilna who never ceased studying Torah and cared little that he spent his years in a cold hovel in the impoverished outskirts of the city. Similarly, the claim by a race to spiritual dignity and intrinsic metaphysical value does not depend upon a "good" cosmic address. It depends only upon the ability of the members of that race to enter into a dialogue with the Creator of all races. God makes Himself available to His creatures wherever they are in His immense universe; He is not a social snob who will not be seen in the cosmic slums and alleys.

The Community of the Unique

The question of the uniqueness of humanity is more semantic than substantive. Few scientists, of those who have totally committed themselves to the proposition that extraterrestrial rational life exists, expect to find duplicates of man. There is fantastic variety among the many forms of life on earth, and even among human types; one has little reason, therefore, not to expect even greater variety in non-earthly species.

But even if such creatures should turn out to be morphologically similar to man, this fact has no bearing on theology. For one thing, the uniqueness of man as such is nowhere established as a dogma. The Bible speaks of man as created in the divine Image, in contrast to other forms of terrestrial life; it is for this reason that the sons of Noah were permitted to become omnivorous, despite the early vegetarianism to which Adam and the succeeding ten generations were subject. Nothing is said of other races, for indeed Torah was given to man on earth and its concern is limited to terrestrial affairs.

Furthermore, even if we grant that the doctrine of the uniqueness of man is an unspoken but real premise of the theistic outlook, it remains unimpaired by the existence of other intelligent races — if the concept is properly understood. The uniqueness of man is not a racial doctrine or biophysical phenomenon. It refers to the spiritual dignity of creatures endowed with reason

The Religious Implications of Extraterrestrial Life

and free-will. On earth, only man fulfills these conditions. If we should discover other free and rational species, we shall of course include them in the community of the uniquely bio-spiritual creatures. Still excluded will be the multitude of other creatures from bacteria through elephants — and the various inferior biological forms that may populate other globes elsewhere.

The uniqueness of man has been challenged not only by over-enthusiastic astrophysicists and exobiologists leaping to premature and unearthly conclusions, but also by scientists such as John C. Lilly who in his *Man and Dolphin* describes his experiments in interspecies communications and his high estimate of the dolphin's intelligence. Long before, indeed, the most powerful attack on man's uniqueness on earth was launched by David Hume, and even he had a long line of predecessors, from Plutarch down, who refused to acknowledge any qualitative differences between man and animal intellectually or morally.¹⁹ The fundamental thesis that underlies this approach is, apparently, that if one can prove quantitative differences in intelligence and moral awareness, then qualitative differences are eliminated. If, therefore, a graded scale can be set up whereby the differences in intelligence, brain-size, etc. between dog and man are bridged by discovering that the dolphin fits in between the two, the conclusion must be that human intelligence differs only in degree and not in kind from that of domestic animals. So, for instance, if animals can be shown to possess a primitive ethical sense in their societies — as Prince Kropotkin showed at the turn of the century in his *Mutual Aid: A Factor in Evolution* — then man presumably is nothing but an advanced animal. But this premise is fallacious and self-defeating, for by pushing the argument far enough one can banish the concept of quality altogether. As long as life has a material basis, and as long as quantity remains a fundamental category of matter, quality will be reducible to quantity. A magnificent sunset and a vulgar television program can be shown to differ in frequency and wave-length of electromagnetic disturbance. Must we, therefore, be forced to conclude that there is no qualitative difference between them? Since all matter is reducible to atoms in different combinations, and since atoms, indeed all matter, are further reducible to energy states which are quantifiable, does

that abolish all meaningful differences between the neighing of a horse and the philosophizing of a Hume? The radical nihilist may perhaps answer in the affirmative, but then all further discussion becomes meaningless for nothing makes sense in such an illusory existence.

The assertion of quality does not deny the presence of quantity. The dolphin may be *less* intelligent than the scientist and *more* intelligent than the dog, but meanwhile, it is Dr. Lilly who studies dogs and dolphins while the dolphins study neither scientists nor canines.²⁰

The category of uniqueness, in the theological sense we have been intending, is such a quality. It certainly has a biological and psychological basis. But the fact that one may analogize between mankind and animals or computers or extraterrestrial races does not deny it. Humanity's uniqueness, its divine Image, is a measure of spiritual competence and ability which depends upon certain intellectual attainments. All who have attained this degree of intellect and volition in the kind of combination that makes them think of God and yearn for Him are members of the community of the spiritually unique — no matter where they be.

Moreover, caution must be exercised in accepting uncritically every latest pronouncement by scientists whose naturalistic bias leads them to conclude that man is "nothing but" an animal of advanced intelligence. Man's body is physical, his intelligence is subject to quantification, his psychology can be reduced to natural instincts, his mentality measured in numbers; hence, they conclude, man can in no way be considered anything but an animal, and his uniqueness is but a self-serving and vain myth. However, a great deal more attention must be paid to a dimension of human existence that is *not* shared by any member of the animal kingdom: the "will to meaning." The contributions of logotherapy, or existential analysis (what has been called "the third Viennese School of Psychotherapy") have presented a cogent case on behalf of man's striving to find a meaning in his life as the primary motivational force in man. "Man's search for meaning is a primary force in his life, and not a 'secondary rationalization' of instinctual drives."²¹ According to this thesis, the meaning man seeks is outside himself. The fulfillment is spiritual rather than only psycho-

The Religious Implications of Extraterrestrial Life

logical, and man retains an inner freedom. Certainly this spiritual dimension of human existence must be considered before any value judgments are made on man as "nothing but" a higher animal.

A Rash on the Sky?

Maimonides' anthropology offers us a much needed restraint upon what might otherwise tend to become an exercise in racial pride and global arrogance. Even if life should never be found elsewhere, it would do us good to mute the self-importance that so often afflicts the various forms of modern humanism even more than theology. In the history of philosophy there was, as we have seen exemplified in Saadia, a pronounced emphasis on man as the purpose of the universe. The teleological bent, in the Middle Ages, certainly tended towards extravagance. The illustration that comes to mind is the medieval Mohammedan theologian who cited, as one of the most striking examples of God's kindly concern for the welfare of His children, the fact that He never sent rain to deserts where it would be wasted, but only to the fertile valleys where it would do some good. Maimonides' broader view, no less than the current speculations, offers a healthy corrective to the inclination by man to read his own interests into Nature and presume himself to be the purpose of all the cosmos.

However, there is a wide gap between Maimonides' rejection of an anthropocentric teleology and the facile assumption by certain contemporary agnostics that man is utterly purposeless. The smug assertion that from the cosmic point of view — as one scientist put it — life is a very unimportant affair, is absurd for (as Barzun has pointed out) it presupposes a cosmic point of view which by definition does not exist. The scientist may exclude purpose from the *a priori* categories with which he operates, but he can make no positive assertions about its absence; he may bracket teleology but he may not deny it. As Whitehead once said, "Scientists animated by the purpose of proving that they are purposeless constitute an interesting subject for study."²² To declare life and man purposeless is to presume a knowledge and a superiority to which one who is but a man may not legitimately lay claim.

For Maimonides — and this is certainly a viable and reasonable position for contemporary theists — man may not be the purpose of the universe, yet he may have a purpose in the universe. Every species in creation, according to Maimonides, has as its immanent purpose the will of God. Mechanistic origin and teleological end are identical — all existence comes from God and exists for God. Mankind, like every other kind, fulfills the will of God by its very existence. Whatever detracts from man's existence frustrates the purpose and will of the Creator.

For the believing Jew, therefore, man can accept a far humbler place in the universe than previously assigned to him without surrendering his intrinsic worth and meaningfulness before God. The religious person does not consider mankind, even if it is not the "axle of the world," as nothing but a swarm of two-legged vermin emerging accidentally from a primitive scum to disfigure the face of the earth; even as he does not take seriously Hegel's brash statement that the stars are nothing but "a rash on the sky." All that exists is endowed by the Maker with the dignity of purpose. The purpose of man's life, therefore, is profoundly religious and very real — and unaffected by the fact that he is not the sole *telos* for which all else was called into being.

III. THE UNIQUENESS OF THE CREATOR

The theory of man's non-singularity in the universe is based, as has been mentioned above, upon the naturalness of the evolution of life given the right conditions. This premise is being tested in laboratories at this moment. Scientists expect that there will be synthesized, from simple non-living matter, long-chained compounds which have the ability to replicate themselves from given materials in their environment. Such experiments have, as of this writing, not been successfully concluded. Few scientists doubt, however, that this historic synthesis will be performed imminently.

Quite independently of the question of the existence of extra-terrestrial intelligent life, the creation of living matter in a test-tube apparently poses a powerful challenge to traditional religious thinking. Whereas the former brings into question the uniqueness of man, the second, as it were, challenges the uniqueness of God.

The Religious Implications of Extraterrestrial Life

If man can create life, does not the concept of a creating divinity become superfluous? And if we strike down the first verse in Genesis, does not all the Bible and all religion fall with it?

Our approach here is fundamentally the same as our approach to the problem of the uniqueness of man. Here, too, a concept has been assumed simply because no facts, or even the possibility of the existence of such facts, arose to challenge it. However, upon further reflection and deeper examination it will be found that nowhere in the Bible or the Jewish tradition is such an idea explicitly advocated. There is no fundamental of the Jewish faith that, for its own dogmatic integrity, requires or implies the belief that God is the exclusive Creator of life.

"From Whence Thou Comest"

Our first problem concerns the "naturalness" of life. Our position is that even if all the steps in the creation of life from inert chemicals can be determined with the exactitude necessary for experimental duplication, this in no wise detracts from the value of life as such nor from the faith that it was brought into being by the word of God.

A consideration of modest origins inspires meekness but does not diminish value. A full grown man develops from a fetid seminal drop and an all but invisible ovum. The awareness of this fact is, indeed, urged upon man by the Sages in order for him to acquire humility and thus avoid sin;²³ this, however, does not make man any the less worthy because of it. Great paintings consist of cheap oil colors placed upon plain canvas, great music is a combination of elementary sounds, and great architecture can be reduced to ordinary building materials. In all these cases, a comparison of origins and end-products serves not to diminish the resulting achievements but to occasion marvel at them.

Thus, too, one may know the exact steps and all details of the technique whereby such ends were attained. Except for the irrational cynic, such knowledge serves to enhance the appreciation of the miracle of creativity. A Rembrandt and Beethoven and a Wright are all the greater for having created step-wise from simple materials rather than magically conjuring up exquisitely finished

products by some hokus-pokus. So is the step-by-step development of life from simpler stuff a source of wonder which should increase as we contemplate the process of such development.

For indeed, after the first moment of creation *ex nihilo*, when the formless primitive stuff of the world (*tohu va-vohu*) was called into being from nothingness, all divine activity was restricted to the production of new forms and structures and combinations from pre-existent material; in the beginning there was "creation," *beriah* (i.e., out of nothing), but thereafter came only "formation," *yetzirah* (i.e., out of previous stuff).²⁴ Life is no exception to this rule; it, too, was formed from material that existed before it, since the moment of creation. Thus, vegetation was brought out from the earth (Gen. 1:11), fish from the water (Gen. 1:20), animals from the earth (Gen. 1:24), etc. Even man was created out of dust from the ground (Gen. 2:7). In each of these cases, the Torah implicitly grants that natural chemical and biological processes were utilized by the Creator to produce His creations. Man, too, insofar as he is a natural being, was the result of a natural developmental process. (The only difference is in a realm other than the natural: man is also a metaphysical being, he represents an interpenetration of the material and the divine.²⁵) The creation of life is, therefore, according to the Bible, no more and no less "miraculous" than the creation of any of the complex inorganic substances that were formed out of the primordial chaos after the first instant of *creatio ex nihilo*.

"And Then Solomon Built"

The fact that the Bible does not record the intermediate steps that came between the beginning and the end of the process of creation does not constitute a denial of their existence or an assertion of a miraculous suddenness in the appearance of the final phenomena. If, as we have said, all divine activity after the initial act of creation *ex nihilo* was *yetzirah*, or formation of new objects from pre-existent material, it follows that such formation was in accordance with natural law. For by "natural law" we mean the revelation of the divine will in relation to all natural substances — the way God acts towards His creation. It is reasonable, there-

The Religious Implications of Extraterrestrial Life

fore, to assert that natural law was created together with nature; that in bringing the world into being He also brought into being the manner in which His will concerning its existence was to be executed. This is but another way of saying that God knew what He was doing. To attribute to God the violation of natural law at the very beginning of His "formation," after the initial act of "creation," is to attribute to Him an inconsistency that is nothing less than absurd. Quite evidently, therefore, a genuine religious position would incline to a "natural" divine activity upon nature, rather than a "miraculous" suspension of natural law in the course of bringing the present phenomenal world into being.

The Bible is not an engineering manual or science text-book. It does not seek to describe the steps by means of which God created. Its sole aim, in Genesis, is to assert that God is He who brought all into being, and that certain moral and religious consequences flow therefrom. As Rabbi Kook has pointed out,²⁶ it is an aspect of Biblical style to attribute the end product to the one who is ultimately responsible for it, while overlooking all intermediate steps as secondary. For instance, Solomon was responsible for the building of the Temple in Jerusalem. He hired the laborers, commissioned the architects, raised the funds, and superintended the general progress of the work. At no time, of course, did Solomon take leave from his royal duties and relinquish his regal dignity in order to hew the stone and lay the bricks and saw the wood. Yet the Bible states quite simply, "And then Solomon built . . ." And, of course, the Bible is right! So with the creation: "And God said let there be light" is not of one piece with the magician pulling a rabbit out of his hat. No doubt the separation from the primordial mass-energy nebulae of electro-magnetic waves of certain frequency followed natural law, i.e., was in character with the nature of what God had made; yet it would be ridiculous for anyone to expect that a list of mathematical formulae and technical instructions be included in the Bible. "In the beginning God created," and "God said let there be . . ." are sufficient for man to draw the moral implications for his own existence. That is all the Torah wants of us. And what holds true for the creation of inanimate matter holds true for animate material. The ultimate Creator is God alone; the intermediate stages are

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of no religious consequence.

If, then, we have no Biblical warrant for designating the creation (or "formation") of life as a separate category, different in kind from that of inorganic matter, then all that applies to the latter applies to the former.

To see in such creation a challenge by man to the prerogatives of God, is to ignore some of the fundamentals of the Biblical conception of man. For a significant aspect of the vocation of man is — creativity.

Technology and Theology

Indeed, an unprejudiced reading of the Biblical text leads us to the conclusion that the capacity for creation is the primary meaning of man's divine Image. All we know about God at this point early in the Bible's story is three things: that God is the Creator of all things; that He created man as a natural being endowed with special significance; and that He is the source of absolute moral judgments ("And God saw . . . that it was good"). To be like God, therefore, means that man has these three duties: to advance the welfare of the world by marshalling his creative abilities (*yishuv ha-olam*); to protect human life and improve the conditions of life (*chesed*); to establish the absolute moral good in society and civilization. Man can fail in this mission, and his failure is not so much the forgetting of his divine Image as his distortion of it, his abuse of the qualities he shares with his Maker. Early in Biblical history we meet with such tragic errors where man does not imitate God but impersonates Him, where man does not deny but plays God. The murder of Abel by Cain is an instance of man, charged with enhancing life, imagining himself to be its master who may therefore destroy his possession with impunity. The sin of Adam and Eve in the Garden of Eden is the result of failing to apply the divinely sanctioned norms and seeking, instead, to supplant them with moral judgments of their own devising.²⁷ The building of the Tower of Babel is an illustration of man who fails to employ his creative technological genius in the furtherance of the divine ends but uses it instead in an endeavor to subvert the purposes of God.

The Religious Implications of Extraterrestrial Life

Whatever the nature of man's misuse of his divine Image, this much is certain — that the creative human act is an expression of the Image of the divine Creator. Technological creativity is surely one of the most effective means of "subduing" nature (the divine command to man: "fill the earth and subdue it" — Gen. 1:8); Hirsch sees the human-divine cooperative participation in creativity in the words "which God created to do" (Gen. 2:3), i.e., God created the world unfinished, charging man "to do" or to complete by exercising his creative talents. The Bible follows the story of Abel and Cain (who, as a "worker of the earth," symbolized the investment of human talent and toil in the creative development of Nature, as opposed to Abel who passively guarded his flock²⁸) with a description of man's growing technological creativity: Cain himself "built a city"; Jabal, Jubal, and Tubal-Cain contributed to the enhancement of man's creative propensities in husbandry, the arts, and the crafts (Gen. 4:17-22).

Human creativity is therefore an expression of man's God-likeness. Certainly one ought not see in this capacity of mankind a challenge to divine creativity; this, indeed, was the error of the builders of the Tower of Babel. When primitive man rubbed two stones together and produced a spark, he was not displacing God's creation of light and fire; he was exercising his divinely ordained vocation of creativity for enhancing the material world by use of his talents, and was thereby imitating God who said "Let there be light." The invention of the scissors was a creative extension of the human hand, the automobile of the human foot, and the computer of the human brain. Man, in all of these, has creatively imitated his Maker. God is a *Rofei cholim* — He heals the sick. When mankind makes medical progress it fulfills its divinely-decreed mission; it does not compete with the Lord. If, therefore, man will discover the secrets whereby living matter is produced from inanimate stuff, he will not be challenging God but, quite the contrary, fulfilling in an unparalleled manner his function of *imitatio dei* in the assertion and exercise of his creative genius.

The mentality that sees in every new advance of science and technology a further challenge to God and the belief in a Creator, reveals a remarkable anthropomorphic bias: as if God were an aloof, autocratic, and tyrannical Deity, jealously guarding His

own domain and His industrial secrets from any encroachment by man whom He regards as His competitor for hegemony over this contested realm. Nothing is further from a mature theistic outlook than this kind of interpretation placed upon the imminent experimental production of life in the laboratory. A Norwegian scientist, A. E. Wilder Smith, recently took issue with such unwarranted materialistic interpretations and conclusions. The experiments prove, he said, "nothing more than that, *with the necessary interference from outside*, life may result in a previously lifeless system . . . In scientific experiments of this kind, a scientific mind or intelligence at the back of the experiment is the absolute prerequisite for any hope of achieving success . . . It is plain scientific nihilism to attempt to replace the carefully planned scientific experiment by the soup stock pot and to say that billions of years will do what the planned experiment can do but with the greatest difficulty, effort, and planning . . . If someone succeeds in repeating and confirming my published experiments, who, in the name of Science, would interpret this feat as proof positive that I do not exist, that I never did the experiments, and therefore need never be reckoned with!"²⁹

With the experimental synthesis of life, man will have reached the highest rung yet in the imitation of the divine attribute of creativity. His achievement will be profoundly spiritual as well as scientific if the mysteries he will have thus uncovered will lead him to enhance human life, relieve it of its miseries, and cause him to reflect upon the greatness of the Creator and the moral obligations He has placed upon His co-creative creatures. Man's accomplishment, by the same token, will be presumptuous and diabolical if these marvelous secrets will fill him with arrogance, intoxicate him with a sense of complete self-sufficiency, and ultimately lead him to destroy every vestige of life on his planet in an ironical reversal of the "Big Bang" theory of how this universe came into being.

IV. GOD AND MAN

We have dealt so far with the question of formulating a religious anthropology in the context of the new cosmography. Also of im-

The Religious Implications of Extraterrestrial Life

portance is the effect of these conceptions upon religious psychology, i.e., the manner in which believing people conceive of and intuit their relationship to the Deity.

Probably the major result, in this connection, of the abandonment of man's exclusiveness and the tendency to devalue humanity as such, will be the continuing effort to strip God of the attribute of personality. If the universe is so much more vast and complex than we heretofore imagined; if man is much less singular, no longer unique, and perhaps surpassed in wisdom by other non-terrestrial species; then perhaps God is so great, so remote, that He is unconcerned with us earth-creatures strutting self-centeredly over an insignificant planet. The very majesty of His universe threatens such fundamentals as God's Providence, His personality, His relatedness to His creatures. To imagine that God has personality, like a mere mortal earth-man; that He is concerned with our trivial interests; that He has anything to do with *us* — is considered an embarrassment, an offense to our modesty. The threat is not so much intellectual and theological as emotional and psychological; but what begins as the latter often ends as the former.

Divine Personality

Whether or not God possesses personality, i.e., whether or not He can and does relate meaningfully to man, is a religious question of the most fundamental significance. At one extreme is a crude anthropomorphic paganism — God as not only a personality but a person: inspiriting matter, tangible, and possessed of the imperfections as well as the virtues of man. At the other end is a rarified "God-concept," abstract, indifferent, ethereal, and ultimately of no consequence. Judaism has always found itself located between the conception of the Greek philosophers of an impersonal Deity who is more a theory than a being, and the gross earthiness of the pagans who created their gods in their own images. Its understanding of God, insofar as it admitted that God can be comprehended by man, entails a major paradox: God as Absolute and as related, as beyond man and as involved with him, as personal but not a person, as unchanging and as responsive to man's initiative, as omnipresent and yet allowing for the existence

of the extra-divine. According to the interpretation of R. Hayyim of Volozhin, this is the essence of the central mystery of religion, known to the Kabbalists as "the secret of the *Tzimtzum*."

The dimensions of divine personality may be identified by the philosophic terms "immanence" and "transcendence." Judaism, for the integrity of its understanding of God, refuses to relinquish either of these elements. God's withinness in the world and his beyondness from it are both affirmed. To separate them is to deal a fatal blow to all of theistic faith. Immanence alone results in a thorough-going pantheism, while transcendence alone leads to a complete deism; the first totally identifies God with the world, the second divorces them without any hope of contact or relationship. One may emphasize transcendence and the related ideas that cluster about it — divine justice, universalism, awe — or immanence and its related concepts — divine mercy, revelation to and election of Israel, love of God. But one may not disrupt the equilibrium by denying any one facet, for then one has excommunicated God and reduced Him to a cosmic irrelevancy; one then has a Deity about whom philosophers may debate and meditate, but not a God to Whom believing people may relate and Whom they can worship.

These terms and this analysis are not merely later philosophical constructs superimposed upon the original Jewish view of God. The words "immanence" and "transcendence" may, indeed, be terminologically inadequate just because they are too precise, too static. But the Bible itself uses two related terms, the meaning and influence of which have recently been traced and described by Israel I. Efros. These two are *Kedushah* (Holiness) and *Kavod* (Glory) which, while they are not identical with the philosophic terms of transcendence and immanence (thus, for instance, *Kavod* does not mean immanence alone), signify similar ideas. Holiness implies the beyondness of God and His supramundane existence, while Glory refers to God's involvement in the world, His quest for man and for man's responsiveness to Him. "Holiness . . . and Glory . . . never existed separately because then Hebraic thought would have expired either in a deistic frost or in a pantheistic flame."³⁰ God is both "Holy" and "Glorious"; the climax of the Seraphic Song in Isaiah (Chap. VI) is the affirmation of both

The Religious Implications of Extraterrestrial Life

apparently contradictory adjectives — “Holy, holy, holy is the Lord of Hosts, the whole world is full of His glory.” And the Zohar describes divinity as both *memalei kol almin* (filling all the worlds) and *sovev kol almin* (surrounding or governing all the worlds).

Beyond Personality

This tension or dialectic, then, between transcendence and immanence, or holiness and glory, constitutes the phenomenon of divine personality. But Jewish thinkers, both of the philosophical and mystical traditions, have insisted that God cannot be limited to personality alone. To do so would be to project human finitude upon Him. Medieval Jewish philosophers have conceived of God as the Absolute, the utterly Simple, uncaused and unchanging. The Zohar speaks of God as the *En-Sof*, the One Who in His ineffable, mysterious Oneness cannot even be given a Name.³¹ In His absoluteness, the *En-Sof* is transpersonal, beyond the immanence-transcendence tension by means of which He becomes related to that which is other than divine. In His absoluteness, then, God is totally insular, self-contained, unconcerned with the world or man. How to comprehend both ideas within one conception of God is, of course, the great problem of religious thought. For the philosophers, it posed the essential problem of “reconciliation” of the two concepts, one arrived at by philosophy, and the other the “living God” of the Bible. For the Kabbalists, this is the great and awesome mystery of mysteries. But both are affirmed — the Absolute and the Related, the transpersonal and the personal, the *deus absconditus* and the *deus revelatus*, the ontological and the existential, God as “the ground of being” and as *a Being*.

According to the Kabbalah, the denial of the unity of these two aspects of God, the divorce or rupture between them, is the primal sin of man. Now, when the immanence-transcendence equilibrium is denied, and God is conceived of as either totally immanent or totally transcendent, we have in effect repudiated the personal nature of God. We have, then, a Deity who is absolute, infinite, and totally unconcerned and hence irrelevant to man. This, however, signifies “the death of God,” and is not at all the

"living God" of theistic religion. Judaism is, thus, renounced when the personality of God is negated by a denial either of His transcendence or His immanence. Only the affirmation of both leaves us with a God who is related, concerned, and relevant to man (as well as absolute and transpersonal).

This fine equilibrium is jeopardized at those moments in history when man comes to a sudden awareness either of how great God is or how picayune and insignificant he is. The two feelings are related as two sides of the same coin, and both, in their vision of God and man, tend to separate the two and gradually make the gap an unbridgeable abyss which ruptures the dialogue between them, reduces man to nothing but a material object, and elevates God to a mere Idea or Power. The I-Thou relation is severed, and personality, both of man and God, is replaced by thingness — in the case of man, a thing subject to natural forces, and in the case of God, a thing or object of contemplation and intellection. Man and God, with the interruption of the delicate balance necessary for the existence of personality, are each reduced to an It. *Isaiah and Uzziah*

An illustration of how this theological equilibrium was upset is given by Don Isaac Abravanel in his commentary to Chap. VI of Isaiah. It is worth summarizing his interpretation, for it is instructive of the theological tendency to deny the attributes of personality to God as man reaches sudden levels of awareness about himself and God.

The superscription of the sixth chapter of Isaiah, which contains the Seraphic Song, tells us that the prophecy came to Isaiah "in the year of the death of King Uzziah." According to the Targum of Jonathan b. Uziel, the expression "in the year of the death" is a euphemism; it refers not to King Uzziah's actual expiration, but rather to the attack of leprosy which struck him (II Chron. 26:16-21). For when Uzziah was at the peak of his strength and triumphs, despite the fact that he had always obeyed the laws of the Torah, he entered the Temple and, although not a priest, proceeded to offer up the incense, in defiance of the law. The priests ordered him out of the Temple, but he angrily refused. His punishment came with miraculous swiftness: leprosy broke out on his forehead.

The Religious Implications of Extraterrestrial Life

What moved the heretofore righteous King to his presumptuous defiance of the law of Torah? And why did the leprosy strike his forehead instead of, for instance, his hand wherewith he committed the sinful act?

Abravanel explains that Uzziah, in his later days, had come to appreciate, in a most extreme manner, the sublime transcendence of the Almighty. He was possessed by the greatness of God and the vastness of the divine realm. He therefore believed that if he, the King, would himself offer the incense, his people would be even more impressed by the awesome loftiness of the God of Israel. But so far did Uzziah go in stressing God's transcendence, that he entirely eliminated the aspect of immanence, of which Providence is a function. He therefore thought of worshiping God only in His transcendence, believing that He is so far beyond the petty concerns of insignificant man that He is not at all interested in the minutiae of Halakhah, of ritual and law.

Uzziah's crime, therefore, was not merely a technical one of a non-priest performing the service, but a far more serious transgression: a heretical doctrinal error, the deistic idea that God is infinitely remote from the world and in His sublimity does not care about the actions of man. Because his sin was fundamentally an intellectual one, the leprosy, symbol of divine displeasure, broke out, appropriately, on his forehead.

The reaffirmation of the traditional Jewish teaching, the assertion that divine immanence, providence, personality, and revelation must not be sacrificed on the altar of transcendence, was the reaction of Isaiah, in this famous chapter, to the displacement of the equilibrium by Uzziah. When leprosy struck the King (the year of his "death") for his heretical theology, initiated by his extravagant celebration of God's dominion over this immense universe, the Prophet addressed the King, announcing that he, too, had visions of the grandeur of God sitting, as it were, upon "a throne high and lifted up." Yet, it does not follow that He therefore abandons earth and man and withdraws from the scene of human endeavor. For "His train fills the temple"; the Divine Presence remains within the world, within the Temple, within society, and accessible to mankind.

To Abravanel's remarkable insight may be added that Isaiah's

vision of the Seraphic Song underscores the same theme. "Holy, holy, holy is the Lord of Hosts" indicates God's aloofness, His transcendence; the Lord is beyond the world, unaffected by man, the same after creation as He was before it. "The whole world is full of His glory (*Kavod*)" implies God's concern for man, His immanence, His involvement in human destiny, His craving for man's love. Both are affirmed, in the same verse, by the fiery Prophet in his protest against Uzziah's attempt to depersonalize God by declaring Him to be beyond the petty concerns, worship, and obedience of man.

There is a striking similarity between this clash of theological conceptions in ancient Judea and the ferment in twentieth century man who ponders whether or not a God of such a vast universe even thinks about him. A modern version — indeed without too much revision — of the Judean King's deism threatens to re-emerge in the contemporary confrontation between traditional theistic attitudes and the new cosmological and exobiological conceptions. The consciousness of the awesome magnitude of God's creation, the awareness of the likelihood that other beings, possibly superior, populate other planets in the far reaches of the cosmos — idea that stagger the imagination and shock our comfortable human prejudices — all these lead us to an enhanced and deepened sensitivity to the transcendent greatness (*Kedushah*, holiness) of God.

But these considerations tend to a one-sided view where divine *Kavod* (glory) is abolished, where man becomes entirely unworthy of divine concern, and where God is, as it were, too busy with more important matters. For all its sophistication, this deistic vision of a solely transcendent God who is too preoccupied to attend to earthly matters is primitively anthropomorphic: it imagines God to be a busy executive, a kind of Chairman of the Board of the Universe who leaves individual details to His vice-presidents and secretaries. The traditional Jewish conception is far more compelling: part of God's endless praise is that despite His loftiness and our lowliness, He is still concerned with every one of us — and every other rational sentient race anywhere. "Wherever you find mentioned the greatness of the Holy One, there you find His gentleness mentioned."³²

The Religious Implications of Extraterrestrial Life

The Lonely, Crowded World

Paradoxically, in the days before man exerted his present control over and independence from Nature, when he still was painfully conscious of his own impotence, he held to a view which regarded man as sufficiently significant to warrant the love and the judgment of God. Today, with a surge of power which has liberated him from the mighty grip of gravity and begun to extend his hegemony beyond earth, he finds himself trivial and irrelevant, unworthy of divine attention, alone in a universe from which teleology and value have been abolished, a world as cold as it is vast and as lonely as it is crowded.

The key to this paradox of man's view of himself is his thought about God — provided he concedes His existence in the first place — or, more accurately, what he thinks God thinks about him. When he held to a conception of a personal God who creates and reveals, who seeks man out and invites man to seek Him out, man was, despite his frailty and intrinsic worthlessness, endowed with significance by his Maker by virtue of His personal nature. When, however, man depersonalizes his God, he dehumanizes himself. No matter how much power he acquires over his environment and beyond it, no matter how much he tries to read his own values into his life by right of his own existential autonomy, he remains desperately alone. His whole scientific armory cannot forge for him a weapon with which to win more than physical significance; and as long as he remains without metaphysical worth, he regards himself, in his heart of hearts, as a nothing, a cosmic accident, shrieking his utter loneliness against the infinitely empty and unresponsive heavens.

The relatively new theological talk of a "developing" and an "evolving" God, are not only not a solution, but the core of the problem. They are a deception, nothing more. A deity subsumed under the Theory of Evolution is no more than an abstract animal. A God who is not supernatural is not Holy. The metaphysical becomes, in such a context, an illusion, and man a spiritual blank. In fact, this conception of an emerging, imperfect, totally immanent God striving for self-realization is, for all its alleged sophistication, strangely primitive, especially when compared to

TRADITION: *A Journal of Orthodox Thought*

the supposedly naive idea of the God of the theists. Biblical man, fully conscious of his own natural limitations and frailties, conceived of a God who was perfect, omnipotent, supernatural. No one could, indeed, accuse him of creating a God in his own image. But some contemporary men, themselves imperfect, well-intentioned but flawed in practice, see mankind as a link in the evolutionary chain, a species whose origins were exceedingly lowly but who strives for advancement in the same chain; and they posit a deity who fits this very description. It is nothing more and nothing less than a modern version of a graven image.

The anticipated shock from the possible discovery of extra-terrestrial intelligent life has thus served, even before such discovery has yet been made, to enlarge the gap between man and God. It may take one of two forms: an exaggerated transcendence, or an extravagant immanence, either a God who is only "far out" or One who is not "out there" at all. But by whatever route one travels, he reaches the same theological dead-end: a God who really doesn't matter. Immanence and transcendence, divorced from each other and taken to an extreme, ultimately meet in a God without personality; and a God without personality inevitably must lead to a humanity without character.

What we have attempted to show is that such conclusions do not necessarily follow from the premises. A God who can exercise providence over one billion earthmen can do so for ten billion times that number of creatures throughout the universe. He is not troubled, one ought grant, by problems in communications, engineering, or the complexities of cosmic cybernetics.

V. CONCLUDING REMARKS

Understanding the Anthropocentrists

The new conceptions are incompatible, Eugene Rabinowitch asserts, with a belief "in the Creator of the world as concerned primarily with human affairs."³³ Can we indeed any longer accept such a theology in the face of these new theories? The question, directed to a committed Jew, is of the when-did-you-stop-beating-your-wife variety. The key words are "any longer" and primarily."

The Religious Implications of Extraterrestrial Life

Not only not "any longer" but not even heretofore did Judaism (in the teaching of all its major exponents) maintain that God was "primarily" concerned with man. Maimonides, as has been explained, did not consider man that important in the larger universe, and would have regarded such a statement — that He is primarily concerned with man — as an instance of anthropocentric presumption.

Honesty, however, compels us to recall that Maimonides was almost alone in advocating his particular conception of the position of man in the universe. Most other thinkers, led by Saadia, declared man the purpose of the creation and, hence, apparently consider that God is "primarily concerned with human events." If, then, there will emerge reasonable grounds for accepting the existence of extraterrestrial rational races, such attitudes will have to be revised. But the revision will be centered upon the word "primarily." Judaism will then accept the view of one of its most distinguished exponents, Maimonides, over that of the majority with whom he disagreed.

However, it is here proposed that even amongst those for whom anthropocentrism was a fundamental outlook, were some of whom it cannot be said that they regarded the Creator as primarily concerned with earth-men. As an example one may cite the views of R. Hayyim of Volozhin who, for all his advocacy of the centrality of man in the universe and his God-like spiritual dominion over the cosmos, by virtue of his being a microcosm (and, conversely, the conception of the cosmos as a macroanthropos), never was parochial in his theology, but held to a conception of God from which he explicitly purged such anthropocentric prejudices.

For R. Hayyim, the mystery of the *Tzimtzum*, which so concerned the famed mystic, R. Isaac Luria, and the whole school of Lurianic Kabbalists, was essentially the paradox of divine aloofness from and closeness to man, His transcendent, impersonal beyondness and His personal dialogic concern for man. The terms R. Hayyim employs are *atzmut* or Essence and *hit'chabrut* or Relatedness,³⁴ which are equivalent, respectively, to the categories described above: that of God in His Absoluteness, the *En-Sof*, and God in His personality (which is defined by the immanence-transcendence tension). In His Essence or Absoluteness, God is be-

yond concern for man or for anything extra-divine. Indeed, for God in His Essence *nothing else exists*. Together with his older contemporary, the Hasidic master, R. Shneur Zalman of Ladi,³⁵ he gives a severely literal interpretation to the words "and thou shalt know this day, and lay it to thine heart, that the Lord He is God in heaven above and upon the earth beneath, *ein ode*" (Deut. 4:39) — the words are usually translated as "there is none else," by which is understood the exclusion of other deities. For both the Hasidic founder of *HaBaD* and the Mitnagdic heir of the Gaon of Vilna, however, the meaning is "there is nothing else" — literally, for there is only God, who in His allness denies ontological legitimacy to any other than Himself. What does not exist, what is only an illusion, cannot be of any interest to God. Hence, He is indifferent to man, to his aspirations and virtues and prayers. God in His *atzmut*, is hidden, the *deus absconditus*, completely "other" and oblivious to the illusion called the cosmos; He is ineffable and even unnameable. One cannot attribute personality to *atzmut* or God in His Essence.

What we can know of God, anything we can say of Him or whatever Names we may apply to Him, all refer not to His Essence, but to His *hit'chabrut*, His Relatedness. It is in His Relatedness, as the *deus revelatus*, that God creates the world, seeks man out, reveals Himself to him, and is affected by man's worship and obedience. *Hit'chabrut* is the domain of the mutuality of God and man, where the divine-human dialogue is legitimate and meaningful, where God as Personality confronts and engages man as a personality. *Atzmut*, however, is all absoluteness, transcendence; its is beyond "I," beyond "Thou," beyond "it."

How these two ideas can be embraced in one conception of an absolutely one God is the problem with which R. Hayyim grapples in his *Nefesh ha-Hayyim*. It remains the mystery of all mysteries which philosophy cannot comprehend and which only religion can accept, despite his suggestion of a resolution by means of dichotomy, a bi-focal view: from God's point of view, there is *only* God, and naught else exists; from man's vantage, there is a real world to which God relates. Whatever the details of R. Hayyim's exposition, it is important to emphasize the utter denial of any possible dualism to God. It is man who is beset by the difficulty

The Religious Implications of Extraterrestrial Life

in comprehension; God remains One. The fault is that of theology, not *Theos*.

What is interesting, in addition to the assertion of both divine personality and impersonality (or transpersonality), and the obviousness that even a confirmed anthropocentrist like R. Hayyim does not consider God "primarily concerned with human events," is how R. Hayyim views the significance of man's spiritual conduct in the light of this theology.

Man's religious behavior — his ethical conduct, moral level, worship, observance of commandments — makes sense only from the point of view of God as He relates, as He turns outward and manifests Himself; in His absolute Essence, God is unaffected by man whose very existence is merely illusory under the impact of His ontological comprehensiveness. But for R. Hayyim this is not a static relationship, whereby all philosophically formulated attributes of perfection and absoluteness are assigned to Essence, and all religiously conceived qualities of action and responsiveness are designated as belonging to Relatedness. For R. Hayyim, there is a tension between the divine Essence and the divine Relatedness. There are times when God appears to withdraw into His Essence and abandon man to cosmic solitude; at other times He emerges from His hiddenness to seek man out, respond to him, engage him. Now this tension, this dynamic movement from Essence to Relatedness and back, is not a whim of God, not an autonomous event or series of events in God's life from which man is excluded. It is man who, by his orientation to God, determines God's orientation to him. When man turns his back on his Creator, He reacts in the same manner: He withdraws into His Essence, and refuses to relate to him. When man seeks out God — by observance of the *mitzvot*, by ethical conduct, by prayer, by study of Torah — God turns to him from out of His Absoluteness, and the area of Relatedness is proportionately enlarged.

God thus remains for man both personal and impersonal, immanent and transcendent, glorious and holy, related and absolute. The degree to which God appears to us in one guise or another depends upon us. But at no time is God other than both absolute and related. Man thus plays a crucial role in determining

TRADITION: *A Journal of Orthodox Thought*

whether and how God will relate to him; but He always remains in His infinite Essence absolutely beyond man, transcending his most vital concerns, even his very existence.

Hence, even as confirmed an anthropocentrist as R. Hayyim of Volozhin does not hold God to this one theatre as a divine audience — or puppeteer — concerned “primarily with human events.” God in His infinite Essence still remains aloof from all of creation, which, no matter how vast or ancient, remains for Him a non-event. Were R. Hayyim to consider the possibility of extraterrestrial rational creatures, he could easily revise his system, limiting man’s efficacy in affecting the Essence-Relatedness tension to the scene of earth. The shift from cosmological to existential terms — man influencing God’s willingness to enter into dialogue with him alone, rather than managing the destiny of the entire cosmos and all the mystical worlds beyond it — can be made without injury to the main tenets of his thought.

We Never Were Alone

Man, we may learn conclusively in the not too distant future, may no longer be regarded as the purpose of creation. But his actions and his destiny are of significance to a Creator who, in His infinity, is not bewildered by numbers. While he must begin to feel a new and pervasive collective humility in the face of the immeasurable richness and variety of God’s world, the psychological climate of such wonder and humility need not lead him to conclude that God is unaware of his existence.

The discovery of fellow intelligent creatures elsewhere in the universe, if indeed they do exist, will deepen and broaden our appreciation of the mysteries of the Creator and His creations. Man will be humble, but not humiliated. With renewed fervor he will be able to turn to God, whose infinite goodness and providence are not limited to, but certainly include, one small planet on the fringes of the Milky Way.

We may yet learn that, as rational, sentient, and self-conscious creatures, “we are not alone.” But then again, we have never felt before nor need we feel today or in the future that we are alone. “For Thou art with me.”

The Religious Implications of Extraterrestrial Life

NOTES

1. New York: McGraw-Hill Book Company, 1964.
2. "Science Pauses," *Fortune*, (May, 1965).
3. Harlow Shapley, *The View from a Distant Star* (New York: Basic Books, Inc., 1963).
4. Stephen B. Dole, *Habitable Planets for Man* (New York: Blaisdell Publishing Company, 1964).
5. Otto Struve, *The Universe* (Cambridge: Massachusetts Institute of Technology Press, 1962), p. 158.
6. Alastair G. W. Cameron, *Intersellar Communication* (New York: W. A. Benjamin, Inc., 1963).
7. Fred Hoyle, *Of Men and Galaxies* (Seattle: University of Washington, 1964).
8. Quoted by Sullivan, *op. cit.*, p. 75.
9. "Challenges to Biology" in *The Challenges of Space*, ed. Hugh Odishaw, (Chicago: University of Chicago Press, 1962).
10. Hoyle, one of the originators of the "steady-state" theory, has recently recanted. In an article in the British journal *Nature* (Oct. 9, 1965) he accepts as valid the criticisms of his idea of a steady, infinite universe, although he does not completely accept the "big bang" theory of his opponents. See also his *Galaxies, Nuclei and Quasars* (Harper and Row, 1965).
11. Arthur O. Lovejoy, *The Great Chain of Being* (Cambridge: Harvard University Press, 1936).
12. Jacques Barzun, *Science: The Glorious Entertainment* (New York: Harper and Row, 1964).
13. *The New York Times*, April 13, 1965.
14. *The New York Times*, July 29, 1965.
15. Cf. Martin Gardner, *Fads and Fallacies in the Name of Science* (New York: Dover Publications, Inc., 1957).
16. *The Collected Letters of R.A.I. Kook* (Hebrew), Vol. I, pp. 105-107.
17. *Kohellet Rabbah*, 7:28.
18. Prof. Harry A. Wolfson, in his *Philo*, maintains that, *Philo* notwithstanding, the Jewish tradition holds that simultaneously with our world God created thousands of other worlds. Wolfson further asserts that, if not for other complications, Saadia, too, would accept the plurality of worlds. See, in greater detail, my article in *Jewish Quarterly Review* mentioned below.
19. Marvin Fox, "Religion and Human Nature in the Philosophy of David Hume," in *Process and Divinity: The Hartshorne Festschrift* (Illinois: Freeman Open Court Publishing Company, 1964).
20. For a report on an unorthodox view of man's uniqueness by a contemporary biologist, see Marjorie Green, "Portmann's Thought," in *Commentary* (November 1965), and, in the same issue, "The Special Position of Man," by Adolf Portmann himself.
21. Viktor E. Frankl, *Man's Search for Meaning: An Introduction to Logotherapy* (New York: Washington Square Press, 1964), p. 154.

11

TRADITION: A Journal of Orthodox Thought

22. Alfred North Whitehead, *The Function of Reason* (Princeton: Princeton University Press, 1929).

23. *Avot* 3:1.

24. Cf. Nachmanides to Gen. 1:1. R. Hayyim of Volozhin similarly defines the mystical worlds of *beriah* and *yetzirah*, in which God's creative power unfolds, as *yesh me'ayin* and *yesh me'yesh*; cf. *Nefesh ha-Hayyim* 1:13, 2nd gloss.

25. Thus Nachmanides (to Gen. 1:26) explains the plural in the words "Let us make a man in our image, etc." (Gen. 1:26); i.e. here God addresses the earth, indicating the special quality of man as a compound of the strictly physical and spiritual.

26. See the letter mentioned above.

27. This may well be the meaning of the Tree of "Knowledge" from the fruit of which, as the serpent told Eve, "You will be like God *knowing* good and evil." In the Hebrew the word may mean not only knowing, in the passive cognitive sense, but also informing or establishing knowledge in the active sense. This is the meaning Maimonides (*Guide*, 3:24) gives to the verse in Gen. 22:12 — *ki ata yadati*, "for now have I made known," etc. This answers the question posed by Maimonides in *Guide* 1:2. The transgression of Adam, therefore, lay in his usurping the divine prerogative of setting the moral absolutes.

28. See the thoughtful analysis of the Cain and Abel story by Israel Eldad in his *Hegyonot Ha-mikra*.

29. Reported in detail in *Christianity Today*, June 20, 1965.

30. Israel I. Efros, *Ancient Jewish Philosophy* (Detroit: Wayne University, 1964).

31. The *Sephirot*, or divine attributes, thus not only reveal the "light of the *En-Sof*," but also conceal Him; i.e., God is knowable only through His actions, but the Essence of God transcends His revelations and is, in fact, eternally concealed from man by the very attributes by means of which God turns outward and encounters man (end, Introduction to *Tikkunei Zohar*). R. Hayyim of Volozhin maintains that the term *En-Sof* (Infinite) is not meant to describe God in His absoluteness — for this Essence is, as said, unnameable. It refers, rather, to the inability of man ever to exhaust his contemplation of this Essence which he can only assert, never describe.

32. *Megillah* 31a.

33. In his Foreword to *The Challenges of Space*, mentioned above.

34. *Nefesh ha-Hayyim*, Part II, chap. 2.

35. See his *Likkutei Amarim*, chap. II, p. 160.