

Xenology

**An Introduction to the Scientific Study of Extraterrestrial Life,
Intelligence, and Civilization**

First Edition

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TABLE OF CONTENTS

Preface and Acknowledgements for the First Edition (non disponible)

PART ONE : Perspectives

- Chapter 1. Introduction (non disponible)
- Chapter 2. Extraterrestrial Life: The History of an Idea
 - 2.1 Ancient Beginnings
 - 2.2 The Long Interregnum
 - 2.3 Plurality of Worlds and Divine Purpose
 - 2.4 Science and Science Fiction
- Chapter 3. The Aliens Among Us
 - 3.1 Xenoarchaeology
 - 3.1.1 Extraterrestrial Intervention in Biological Evolution
 - 3.1.2 Extraterrestrial Cultural Intervention
 - 3.1.3 Extraterrestrial Artifacts and Manifestations
 - 3.2 Ufology
 - 3.2.1 Why Believe in UFOs?
 - 3.2.2 The Evidence for UFOs
 - 3.2.3 The UFO Game
 - 3.3 The Resident Aliens
- Chapter 4. Xenology: The Context of the Universe
 - 4.1 The Universe
 - 4.2 Galaxies
 - 4.3 The Milky Way Galaxy
 - 4.4 The Stars
- Chapter 5. General and Comparative Planetology
 - 5.1 Planetary Evolution
 - 5.2 Thalassogens
 - 5.3 Planetary Atmospheres
 - 5.4 Planetary Meteorology and Astrogeology
 - 5.4.1 Climate and Weather
 - 5.4.2 Sky Colors
 - 5.4.3 Astrogeology
 - 5.5 Planetary Habitability

PART TWO : Xenobiology

- Chapter 6. A Definition of Life
 - 6.1 Chronology
 - 6.2 What Is Life?
 - 6.2.1 The Traditional Answer
 - 6.2.2 Organization
 - 6.2.3 Towards a Definition of Life
- Chapter 7. The Origin of Life
 - 7.1 Historical Views on the Origin of Life
 - 7.2 Cosmochemical Evolution
 - 7.3 Early Chemical Evolution on Earth
 - 7.3.1 Prebiotic Synthesis
 - 7.4 Proteins and Cells
 - 7.5 Nucleic Acids and DNA
 - 7.6 Early Biological Systems
- Chapter 8. Exotic Biochemistries
 - 8.1 The Argument for Diversity
 - 8.1.1 Temperature Chauvinism
 - 8.2 Alternative Biochemistries
 - 8.2.1 The Limits of Carbon Aqueous
 - 8.2.2 Alternatives to Water

	8.2.3	Alternatives to Carbon
	8.3	Exotic Lifeforms
Chapter	9.	Experimental Xenobiology: Searching the Family of Sol*
Chapter	10.	Alien Bioenergetics
	10.1	Finding the Energy to Live
	10.2	Photosynthesis
	10.3	Animal Metabolism and Respiration
	10.4	Alien Blood
	10.5	Thermoregulation
Chapter	11.	Extraterrestrial Biomechanics
	11.1	Specialization and Symmetry
	11.2	Xenobiomechanics
	11.2.1	The Challenge of Gravity
	11.2.2	Meeting the Challenge: Skeletons
	11.3	Alien Locomotion
	11.3.1	Aquatic Locomotion
	11.3.2	Travel by Land
	11.3.3	Avian Propulsion
Chapter	12.	Alien Sex
	12.1	Is Sex Necessary?
	12.2	The Bisexual Universe
	12.2.1	Intersexuality
	12.2.2	Optional Sex
	12.3	Alien Sex Practices
	12.3.1	Alien Orgasms
	12.4	Xenogamy
Chapter	13.	Sensations
	13.1	Tactile Senses
	13.2	Olfaction
	13.3	Acoustical Senses
	13.3.1	Two-Dimensional Sound
	13.3.2	Three-Dimensional Sound
	13.4	Electrical and Magnetic Senses
	13.5	Vision
	13.5.1	Visible Vision
	13.5.2	Infrared Vision
	13.5.3	Radio Vision
	13.6	Alien Senses
Chapter	14.	Extraterrestrial Intelligence
	14.1	Evolution of Intelligence
	14.1.1	In the Beginning
	14.1.2	The Triune Brain
	14.2	Juvenile Extraterrestrial Intelligences
	14.2.1	Genetic Sentience
	14.2.2	Brain Sentience
	14.2.3	Communal Sentience
	14.3	Alien Consciousness and the Sentience Quotient

PART THREE : Extraterrestrial Civilizations

Chapter	15.	Energy and Culture
	15.1	Type I Civilizations: Planetary Cultures
	15.2	Type II Civilizations: Stellar Cultures
	15.3	Type III Civilizations: Galactic Cultures
	15.4	Type IV Civilizations: Universal Cultures
Chapter	16.	Xenobiotechnology
	16.1	Bioneering

- 16.1.1 Intelligence Amplification
- 16.1.2 Genetic Surgery
- 16.1.3 Genetic Hybrids and Synthetic Genes
- 16.1.4 Ectogenesis and Cloning
- 16.2 Immortality
 - 16.2.1 Xenogerontology
 - 16.2.2 The Limits of Immortality
- 16.3 Androids and Cyborgs
 - 16.3.1 Androids and Organleggers
 - 16.3.2 The Bionic Alien
 - 16.3.3 Enter the Robot? (aka. Uploading)
- 16.4 Machine Life
 - 16.4.1 Artificial Intelligence
 - 16.4.2 Robots and Robotics
 - 16.4.3 Machine Evolution
- Chapter 17. Interstellar Voyaging
 - 17.1 Communication vs. Transportation
 - 17.2 Relativistic Starflight
 - 17.3 Conventional Interstellar Propulsion Systems
 - 17.3.1 Nuclear Pulse Propulsion
 - 17.3.2 Controlled Fusion Rocket
 - 17.3.3 Interstellar Ramjet
 - 17.3.4 Beamed Power Laser Propulsion
 - 17.3.5 Total Conversion Drives
 - 17.4 Exotic Propulsion Systems
 - 17.4.1 Gravity Catapults
 - 17.4.2 Antigravity and Reactionless Field Drives
 - 17.4.3 Tachyon Starships
 - 17.4.4 Momentum Interconversion Drives
 - 17.4.5 Statistical Transport
 - 17.4.6 Black Holes and Space Warps
 - 17.4.7 Teleportation and Transporter Beams
 - 17.5 Time Travel
 - 17.6 Interstellar Navigation
 - 17.7 Generation Ships and Suspended Animation
- Chapter 18. Alien Weapons
 - 18.1 Chemical, Biochemical, and Biological Weaponry
 - 18.2 Bionic Weaponry
 - 18.3 Sonic Weapons
 - 18.4 Photonic Radiative Weaponry
 - 18.5 Particulate Radiative Weaponry
 - 18.6 Nuclear Explosives
 - 18.7 Climate Modification and High Technology Weapons
 - 18.8 The Ultimate Weapon
- Chapter 19. Planetary Engineering and Galactic High Technology
 - 19.1 Alien Materials Technology
 - 19.1.1 New Forms of Matter
 - 19.1.2 Energy Storage and Mining Techniques
 - 19.2 Extraterrestrial Habitat Engineering
 - 19.2.1 Terraforming
 - 19.2.2 Space Habitats
 - 19.2.3 Planet Moving and Star Mining
 - 19.2.4 Large Scale Biospheric Engineering
 - 19.2.5 Galactic Megastructures
- Chapter 20. Xenosociology
 - 20.1 Biological Evolution

- 20.1.1 Evolution Rates
- 20.2 Xenopsychology
 - 20.2.1 Energy Ecology
 - 20.2.2 Competition and Aggression
 - 20.2.3 Universal Emotions
 - 20.2.4 Xenophobia
- 20.3 Early Technological Civilizations
 - 20.3.1 Telluric Civilizations
 - 20.3.2 Aquatic Civilizations
 - 20.3.3 Avian Civilizations
- 20.4 Alien Social Systems
 - 20.4.1 Models for Extraterrestrial Societies
- Chapter 21. Extraterrestrial Governments
 - 21.1 Dimensions of Extraterrestrial Government
 - 21.1.1 Governance Scales
 - 21.2 Alien Political Organizations: Xenopolitical Factors
 - 21.2.1 Sentience
 - 21.2.2 Dispersion
 - 21.2.3 Size
 - 21.2.4 Heritage
 - 21.2.5 Xenopolitics: Tentative Conclusions
 - 21.3 Extraterrestrial Organizational Cybernetics
 - 21.3.1 System Complexity
 - 21.3.2 System Structure
 - 21.3.3 System Stability
 - 21.4 Strategic Galactography
 - 21.4.1 The Economic Viability of Interstellar Cargo Transport
 - 21.4.2 Galactic Trade Routes
 - 21.4.3 Interstellar War
- Chapter 22. Extraterrestrial Cultures
 - 22.1 Alien Religion
 - 22.2 Alien Ritual
 - 22.2.1 Religious Rites
 - 22.2.2 Extraterrestrial Cults
 - 22.3 Ethics and Law..... Local Copy (HTML)
 - 22.3.1 Extraterrestrial Ethics
 - 22.3.2 Legal Universals
 - 22.3.3 Xenopenology
 - 22.4 Philosophy and Knowledge
 - 22.4.1 Alien Logic
 - 22.4.2 Time, Language, and Space
 - 22.4.3 Science and Paradigmology
 - 22.4.4 Xenoeschatology
 - 22.5 Extraterrestrial Aesthetics
 - 22.5.1 Xenomusicology
 - 22.5.2 Alien Painting and Surface Arts
 - 22.5.3 Dance and Sports
 - 22.5.4 Alien Sculpture and Architecture

PART FOUR : First Contact

- Chapter 23. Abodes of Life: The Search Begins
 - 23.1 Theoretical Galactic Demography
 - 23.1.1 The Drake Equation
 - 23.2 Observational Galactic Demography
 - 23.2.1 Direct Observation of Alien Planets
- Chapter 24. Interstellar Communication Techniques

- 24.1 The Cosmic Miracle
 - 24.1.1 Eavesdropping
- 24.2 Extraterrestrial Signaling
 - 24.2.1 Alternative Channels: HEPs, Neutrinos, Gravitons and Tachyons
 - 24.2.2 Electromagnetic Waves and Frequency Selection
 - 24.2.3 Acquisition and Artificiality Criteria
 - 24.2.4 Alien Message Contents
 - 24.2.5 SETI: Yesterday and Today
- 24.3 Extraterrestrial Starprobes and Artifacts
 - 24.3.1 Why Probes are Better
 - 24.3.2 Mission Profile
 - 24.3.3 The Nature of Alien Artifacts
 - 24.3.4 Project Daedalus
- Chapter 25. Theory and Practice of First Contact
 - 25.1 First Contact and Metalaw
 - 25.1.1 Basic Metalaw
 - 25.1.2 Fasan's Metalaws
 - 25.1.3 Universal Thermoethical Principles of First Contact
 - 25.2 The Character of First Contact
 - 25.2.1 Mass-Energy Scales of Contact
 - 25.2.2 Information-Rate Scales of Contact
 - 25.2.3 Generalized First Contact Taxonomy
 - 25.3 First Contact Protocols and Elementary Astropolitics
 - 25.3.1 Encounters Between Equals: The 0/0 Contact
 - 25.3.2 Gods and Primitives: The 11/0 Contact
 - 25.3.3 Trees and Humans: The 0/10 Contact
 - 25.3.4 Higher-Order Contacts
- Chapter 26. First Contact and the Human Response
 - 26.1 Military and Political Response
 - 26.1.1 Remote Contact
 - 26.1.2 Direct Contact
 - 26.1.3 Surprise Contact
 - 26.2 Public Reaction and the Press
 - 26.2.1 Rumor and Credibility
 - 26.2.2 Panic and Mass Hysteria
 - 26.3 Legal Issues of First Contact
 - 26.3.1 Alien Animals
 - 26.3.2 Legal Standards of Personhood
 - 26.3.3 Extraterrestrial Persons
 - 26.3.4 Aliens and American Law
 - 26.4 Human Sociocultural Response
 - 26.4.1 The Acculturation of Humanity
 - 26.4.2 Social Impact of First Contact
 - 26.4.3 The Religious Response
 - 26.4.4 Impact on Science and Technology
- Chapter 27. The Cosmic Perspective*

Appendix A. What To Do If You Encounter Alien Beings or Their Craft

Appendix B. Conferences, Symposia, and Red-Letter Dates through 1979

REFERENCES Refs1-4183

Chapter 2. Extraterrestrial Life: The History of an Idea

"Empty space is like a kingdom, and earth and sky are no more than a single individual person in that kingdom.

*Upon one tree are many fruits, and in one kingdom there are many people.
How unreasonable it would be to suppose that, besides the earth and the sky which we can see,
there are no other skies and no other earths."*

- Teng Mu, a Chinese scholar of the Sung Dynasty (960 -- 1280 A.D.)¹⁹⁰⁴

*"We may pronounce each orb sustains a race
Of living things, adapted to the place.
Were all the stars, whose beauteous realms of light,
At distance only hung to shine by night,
And with their twinkling beams to please our sight?
How many roll in ether, which the eye
Could ne'er, till aided by the glass, descry;
And which no commerce with the Earth maintain!
Are all those glorious empires made in vain?"*

- Sir Richard Blackmore, in *Creation* (1712)⁷⁴⁷

*"That which makes me of this Opinion, that those worlds are not without such a Creature
endowed with Reason, is that otherwise our Earth would have too much the advantage of them,
in being the only part of the Universe that could boast of such a Creature..."*

- Christian Huygens, in *The Celestial Worlds Discover'd; Or, Conjectures Concerning the
Inhabitants, Plants and Productions of the Worlds in the Planets* (1698)⁶⁰²

"Extraterrestrial life is truly an idea whose time has come."

- Dr. Carl Sagan, in *The Cosmic Connection* (1973)¹⁵

The idea that intelligent but nonhuman living beings might exist somewhere has tantalized the minds of men since the dawn of recorded history. Virtually every civilization or major culture on Earth has entertained some such speculation, whether in its mythology, its religious or scientific writings, or in its philosophy of nature.

The sophisticated concept of aliens indigenous to planets circling faraway stars did not blossom into existence overnight, however. The theme of extraterrestrial life has slowly evolved over the course of many millennia of pensive human contemplation. Before it was accepted that Earth was a mere planet and that many others could exist, intelligent nonhuman beings were commonly viewed in a mythological context. But as man learned to appreciate the vast scale of the universe, the idea of life in the physical cosmos matured and gained wider currency.*

* There are many good historical introductions to both the scientific ^{747,1754,1769,1872} and the fictional ^{1896,1897,1872} literature.

2.1 Ancient Beginnings

While it is often pointed out that aliens appear in the most ancient of human records, the true antiquity of the idea is rarely appreciated. An excellent example comes from the Sumerian civilization, which flourished more than five thousand years ago (and may well be the most distant ancestor of Western culture). According to Sumer legends which have survived, codes of law, science, art, architecture and the essentials of proper social behavior all were given to the humans by alien teachers -- amphibian intelligent animals with fishy heads and torsos and human feet. These creatures are never described as gods; there is little doubt the Sumerians presumed them to be as mortal as their human students.²⁰

Usually, though, ancient gods were seen as superior beings with celestial abodes. The Babylonians, successors to the Sumerian civilization, held that the moving points of light in the sky which are the planets were the homes of their gods.⁴⁵ Other cultures such as the Eskimos believed that the Moon and other heavenly objects were themselves gods.¹⁸⁷²

Supposing the world to be flat and subscribing to the nontheistic Confucian philosophy, the venerable Chinese had no conception of or need for life in the firmament -- although dragons and other monsters appeared frequently in the literature. The holy books of Buddhism, on the other hand, appear to accept the plurality of worlds in countless numbers, complete with indigenous alien plant and animal lifeforms.¹⁸⁹⁸

The ancient Vedda culture, which prospered on Ceylon prior to the Hindu invasion in the 6th century B.C., held that after death souls migrated to the Sun, Moon, and the stars before reaching Nirvana (the ultimate state of perfection). The beliefs of the Hindus are also closely associated with the idea of a plurality of worlds. The Indian philosophy, in fact, *"explicitly assumes the existence of extraterrestrial intelligences."*¹⁸⁹⁹ In one myth, as told in the Brahmapurana of the god Indra, we find : *"Hold ! I have spoken only of those worlds within this universe. But consider the myriads of universes that coexist side by side, each with its Indra and Brahma, and each with its evolving and dissolving worlds.... Can you presume to know them, count them, or fathom the reaches of all those universes with their multitude of worlds, each with its legions of transmigrating inhabitants?"*¹⁹⁰¹

The Old Testament is filled with strange events which some have argued may be linked with extraterrestrial visitations -- such as the visions of Ezekiel.¹⁰⁵⁸ And in the New Testament appear such positive statements as: *"In my Father's house there are many mansions"* (John 14:2), and so forth.

But by far the most important early contributors to the advancement of the idea of ETs were the Greek and Roman cultures. To the Homeric Greeks, the Moon was an inhabited world separate from Earth, the dwelling place of protean gods and the spirits of departed humans.¹⁷⁵³ Traditional Grecian mythology held that the universe created the gods, a view more consistent with the concept of mortal, fallible aliens than the usual creator-deity of other religions.

The Greek culture inherited considerable astronomical knowledge from the Egyptians and Babylonians upon which much speculation could be based. Thales of Miletus (6th century B.C.) was a philosopher who had guessed that heavenly bodies might have a material composition similar to that of the Earth. Around this time Pythagoras (well-known for his contributions to geometry) and others were beginning to think of Earth as a globe in space, a sharp break from the flat-world concepts of earlier thinkers.

Since other earthlike worlds might therefore exist, Xenophanes of Colophon - a contemporary of Pythagoras - populated the Moon with inhabitants, cities and mountains.⁶⁰² Another Greek philosopher named Anaximenes evidently also believed in a multitude of celestial habitats, because he had the audacity to tell Alexander the Great that the Macedonian king had conquered *"only one of many worlds."*⁷⁰²

In the 5th century B.C. Democritus taught the concepts of infinite space and numerous worlds.⁷⁴⁷ One of his pupils, Metrodorus of Chios, later wrote that *"to consider the Earth the only populated world in infinite space is as absurd as to assert that in an entire field sown with millet only one grain will grow."*²⁰ Anaxagoras too embraced the plurality of worlds: *"The Sun, the Moon, and all the stars are stones on fire. The Sun is a red-hot mass, or a stone, on fire. The Moon is of earthy nature. . .an incandescent solid, having in it plains, thountains, and ravines !"*¹⁸⁷²

Another 5th century mathematician of the Pythagorean school stated his views on extraterrestrial most forthrightly : *"The Moon has an earthy appearance because, like our Earth, it is inhabited throughout by animals and plants, only larger and more beautiful than ours: for the animals on it are fifteen times stronger than those on the Earth... and the day in the Moon is correspondingly longer..."*¹⁸⁷²

And from The Travels of the Young Anacharsis in Greece, written sometime during the 4th century B.C., we have : *"As nature is even richer by the variety than by the number of the*

*species, I spread in the various planets... peoples who have one, two, three, or four senses in supplement. I then compare their geniuses with those Greece has produced, and I must confess that Homer and Pythagoras inspire my pity."*³⁶²

About this time the first "Moon romance" was written by Antonius Diogenes. His *Of the Wonderful Things beyond Thule* included a visit to the Moon; unfortunately, the original text has not survived.¹⁸⁷²

The Roman poet and philosopher Lucretius firmly believed in a host of inhabited worlds. As he wrote in *De Rerum Natura* : *"Why then you must confess that other worlds exist in other regions of the sky, and different tribes of men, kinds of wild beasts.... Nothing in nature is produced alone, nothing is born unique, or grows unique, alone. Each thing is always specimen -- of race or class, and many specimens belong to each.... That sky and Earth and Sun and all that comes to be are not unique but rather countless examples of a class."*⁷³³

Unfortunately for xenology, the Earth-centered (geocentric) cosmologies sponsored by Plato and Aristotle held sway. Both philosophers were firmly opposed to the concept of a plurality of worlds. Aristotle asserted that all matter was contained in this world, thus leaving no room for any others. The unchangeability of the heavens was cited as additional proof of this.⁴⁵ These teachings were later picked up by the Christian Church and enforced as law. It was then denied that any knowledge could exist that Aristotle had not known.

2.2 The Long Interregnum

Despite the powerful forces arrayed behind the Aristotelian world view, it took time to halt the intellectual momentum in favor of habitable worlds. The famous Roman poet Cicero was interested in the possibility of living beings on the Moon, and his *Somnium Scipionis* may have inspired Plutarch (46 A.D. - 120 A.D.) to write his account of a visit to the Moon. In *Facies in Orbe Lunare*, after dealing with various problems involved in reaching the Moon, the Greek historian endorsed the Pythagoreans thus: *"They affirm that the Moon is terrestrial and inhabited like the Earth, peopled with the greatest living creatures and the fairest plants..."*¹⁷⁵³

He continues : *"It is possible that some inhabitants exist on the Moon; and those who claim that these beings must need everything that is necessary to us, have never considered the variety that nature offers so that animals differ amongst themselves more than they differ from inanimate life."*

Only forty years after the death of Plutarch, the Greek satirist Lucian of Samosata (125 A.D. - 190 A.D.) wrote the first interplanetary romance that has survived the ravages of time.¹⁸⁷² In his elaborate *True History* Lucian and his fellow travelers are carried by whirlwind to the Moon, found to be inhabited by a race of men who ride on the backs of three headed birds. The adventurers have arrived at a most inopportune moment, as the Lunarians are in the middle of a war with the inhabitants of the Sun to settle a dispute over the colonization of Venus.¹⁷⁵³ The space troops include such marvelous creatures as "Horse-vultures," "Salad-wings," and "Flea-archers" (archers astride giant lunar fleas).⁷⁴² The story is reminiscent of the "space opera" of the 1930's and 1940's.

But after Lucian there was no further debate of the possibility of visiting other worlds and meeting the indigenous lifeforms there - for more than a thousand years! This may probably be attributed to the pervasiveness of the Church philosophy and its rigid opposition to the idea of the plurality of worlds. The pronouncement of Franciscus Gratianus, Bishop of Chiusi, in 1145 A.D. was perhaps typical : *"The belief in many worlds was to be condemned as heresy."*

Of course, there was a serious logical flaw in this stance. If God really was all-powerful, why was he only able to create one world? Conversely, if only one world existed how could God possibly be truly infinite and omnipotent? The theologian Thomas Aquinas (1225 - 1274) came up with

a "solution" to the problem : *"God had the power to create infinite worlds, but all the matter in the universe had been used to construct Earth!"*³⁷²

Despite the obvious holes in this reasoning, the Church subsequently partially reversed its extreme position. In 1277, under the authority of the Pope, the Bishop of Paris decried as new heresy the belief that a plurality of worlds was impossible!⁴⁵ This did not, of course, mean that the Church began to teach the plurality of worlds. According to the physics of Aristotle, still in vogue until the 16th century, if any other worlds did exist they would have to gravitate to the center of the universe (where Earth was). But it became wrong to suggest that God could not create many worlds if He wished.⁷⁴⁷

The debate was far from ended. In 1410 the Jewish philosopher Crescas wrote: *"Everything said in negation of the possibility of many worlds is vanity and a striving after wind."* Still, he was unwilling to stick out his neck very far : *"...yet we are unable by means of mere speculation to ascertain the true nature of what is outside this world; our sages, peace be on them, have seen fit to warn against searching and inquiring into what is above and what is below, what is before and what is behind..."*⁷⁴⁷

The first really explicit deviation from orthodoxy occurred during the Inquisition in Europe in the mid-fifteenth century. Cardinal Nicolas of Cusa, Bishop of Brixen and Christian philosopher, wrote a book called *Of Learned Ignorance* (1440) in which he stated : *"Rather than think so many stars and parts of the heavens are uninhabited, and that this Earth or ours alone is peopled.. we will suppose that in every region there are inhabitants, differing in nature by rank and all owing their origin to God."*⁷⁴⁷

Considering how little we know about other animals here on Earth, he claims, *"of the inhabitants.... of worlds other than our own we can know still less, having no standards by which to appraise them."*⁷⁴⁷ It is said that Cusa escaped the Inquisitional wrath only by virtue of his special protection and friendship with Pope Eugene IV.¹⁷⁵³

As astronomical observations became more accurate, the geocentric Aristotelian/Ptolemaic world view began to generate problems that were difficult to resolve. Calculated positions of the planets, for instance, were invariably in error. This necessitated the concoction of elaborate "explanations" based on a kind of astronomical fudge factor.

During this time the first tale of interplanetary travel since Lucian (thirteen centuries earlier) was published. Ludovico Ariosto's (1474-1533) *Orlando Furioso* tells of a trip to the Moon using a chariot driven by Saint John. The vehicle is drawn by flaming horses, who leap from the summit of a high mountain. The Moon, it turns out, is littered with cities and townships. The heavy theological flavor of the story may have helped save Ariosto from persecution.

A mere eleven years later the first edition of Copernicus' renowned *De Revolutionibus Orbium Caelestium* appeared, proposing the modern Sun-centered (heliocentric) solar system. If the Holy See was enraged at this they could do nothing, for the Polish astronomer died the year his book came out -- 1543.

Others were not so lucky. Forty one years after the death of Copernicus a Dominican monk by the name of Giordano Bruno (1547-1600) wrote his controversial *On the Infinite Universe and Worlds*. Among other things, the Italian philosopher advanced the following heterodoxies: *"Innumerable suns exist; innumerable earths revolve about these suns in a manner similar to the way planets revolve around our sun. Living beings inhabit these worlds."*²⁰

Although Bruno was visiting in relatively tolerant Great Britain at the time his book was published,⁷⁴⁷ as soon as he set foot on Italian soil he was promptly arrested by the Church and incarcerated without trial for seven years.⁴⁵ He was then convicted of heresy by a tribunal of the Holy See and sentenced to death. Bruno was burned at the stake in the Campo de' Fiori in Rome on February 17, 1600.

With the improvement of the telescope by Galileo (1564-1642) and the subsequent observations of the mountainous terrain of the lunar surface, it became clear that the Moon was quite similar to the Earth in many ways. His discovery of the four largest Jovian satellites confirmed the existence of many worlds. For his part in advancing the heliocentric Copernican astronomy and the hypothesis of the plurality of worlds, Galileo was arrested by the Inquisition and forced to recant his heresies. Luckily, he was not executed.

Johannes Kepler (1571-1630) further refined the Sun-centered cosmology by suggesting that planets move in ellipses rather than perfect circles. He also authored an engrossing fictional account of a trip to the Moon, published four years after his death, entitled *Somnium*. Lunar biology is described in some detail, including several forms of vegetation and serpentlike grotesque monsters.⁷⁴²

The first narrative of a trip to the Moon written in English was penned by Bishop Francis Godwin in 1638. In *The Man in the Moone* the main character, Domingo Gonsales, uses a team of trained geese under harness to carry him to the Moon whereupon : *"Suddenly I saw myself environed with a kind of people most strange, both for their feature, demeanure, and apparel. Their stature was most diverse, but for the most part twice the height of ours; their color and countenance most pleasing, and their habit such as I know not how to express...."*¹⁸⁷²

By 1640 another book was out, a two-volume set by fellow English Bishop John Wilkins, entitled *The Discovery of a World in the Moone*. Wilkins asserted his straightforward belief *"that it is possible for some of our posterity to find out a conveyance to this other world, and if there be inhabitants there, to have commerce with them."*⁷⁴⁷

The roadblocks to the idea of intelligent alien life on other worlds were rapidly disintegrating.

2.3 Plurality of Worlds and Divine Purpose

By the early and mid-1600's the utilization of the Moon and other planets as abodes for extraterrestrial life had become an accepted theme, certainly in fiction but also increasingly in scientific writings of the time. In the 17th century - the century of great discoveries, scientific breakthroughs and grand geographical voyages around the world - more than 200 accounts of trips to the Moon appeared in print.¹⁸⁹⁶

In 1656 the Jesuit Athanasius Kircher sent his hero touring the heavens with an angel as his guide. In the course of these journeys, the Moon was found to be quite habitable, including mountains, oceans, lakes, islands and rivers.¹⁸⁷²

About a decade later in Milton's well-known *Paradise Lost*, the angel Raphael discusses the possibility of life on the Moon and other planets. Says he of the Moon :

*"Could not there be
Fields and inhabitants? Her spots thou seest
As clouds, and clouds may rain, and rain produce
Fruits in her softened soil, for some to eat
Allotted there; and other Suns, perhaps,
With their attendant Moons..."*

But Adam is cautioned that it is dangerous to cogitate such matters, as they are best left to the Almighty : *"Dream not of other worlds, what creatures there live, in what state, condition or*

degree."⁷⁰²

David Rassen in *A Voyage to the Moon* (1703) allowed that there might be inhabitants on the Moon, but that traveling there would be difficult because of the lack of air between worlds.⁷⁴² In Robert Paltock's *John Daniel* (1751), a survivor of a shipwreck constructs a flying machine to escape his island prison but winds up escaping the Earth instead ! On the Moon he finds copper-skinned humanoids who live in caves and worship the Sun.⁷⁴² And in 1775, a Frenchman named Louis-Guillaume de la Folie published an account of the doings of beings on Mercury. In *Philosophy Without Pretension*, a brilliant Mercurian inventor-scientist constructs a flying machine which carries a skeptical fellow scientist to Earth and maroons him here.⁴⁵

But the fictional treatments of extraterrestrial life in the late 17th and 18th centuries were executed with a growing eye to satire and witty criticism of the foibles of modern civilization. Despite the increasing interest among the scientific community in alien life, fictional tales remained remarkably free of science and technical accuracy.

For example, two of the best-known early adventure stories were Cyrano de Bergerac's (1620-1655) *Voyage to the Moon* (1657) and *History of the States and Empires of the Sun* (1662) (which was uncompleted at his death) . In the first of these tales, the narrator wears bottles filled with morning dew which are attracted to the Sun - everyone knows dew rises ! - and eventually transport him to the Moon. There he meets Domingo Gonsales and his trained geese, and the lunar queen and her court are a cruel mockery of the monarchy of contemporary England.¹⁸⁷²

Gabriel Daniel's novel *A Voyage to the World of Descartes* (1694) is a satire on the dualist philosophy of Descartes. Daniel's travelers found the Moon to be inhabited only by spirits.⁷⁴² Voltaire's characters in *Micromegas* (1752) are extraterrestrials : *"One is a dwarf from Saturn with 72 different senses, and the other is a giant eight leagues tall from the Sirius star system possessing more than a thousand different senses."* The story is a satire on the supposed intelligence of mankind, as it might be evaluated by objective aliens.⁷⁴² And Aratus' narrator in his *A Voyage to the Moon* (1793) treks to Luna by hot air balloon, landing on an island peopled with lipedal snake-like organisms that speak English. The book caricatures British social and political life by describing the civilization of the man-snakes in a most derogatory fashion.⁷⁴²

Another main thrust during this era of development was along religious lines. As the astronomers during the 1600's came to accept the plurality of worlds, an assumption arose that God would never knowingly "waste" a world.⁷⁴⁷ This view, which persisted well into the 19th and even 20th centuries,^{95,103,117,206,599} held that if worlds did exist in space their only real purpose could be to harbor manlike beings.¹⁹⁰²

In this vein, Ralph Cudworth wrote in *The True Intellectual System of the Universe* (1678) : *"It is not reasonable to think that all this immense vastness should lie waste, desert, and uninhabited, and have nothing in it that could praise the Creator thereof, save only this one small spot of Earth."*⁷⁴⁷ The Anglican theologian Thomas Burnet followed suit six years later in a book called *The Sacred Theory of the Earth*, wherein he asked : *"God himself formed the Earth. . . he formed it to be inhabited. This is true, both of the Earth and of every habitable World whatsoever. For to what purpose is it made habitable, if not to be inhabited? We do not build houses that they should stand empty, but look out for Tenants as fast as we can."*⁷⁴⁷

In a sermon preached by a young English clergyman named Richard Bentley in 1692, we find still more evidence of the new viewpoint that swept over Christianity in only a century : *"It remains, therefore, that all bodies were formed for the sake of intelligent minds... each for their own inhabitants which have life and understanding."*⁷⁴⁷ William Derham, another minister and author of the popular work *Astrotheology* (1715), was of the same opinion.

Nor was colonial America immune to these new exotheological conceptions. Cotton Mather (1663-1728), a Puritan minister who wrote a book called *The Christian Philosopher*, had this to say: *"Great God, what a Variety of Worlds hast thou created! How stupendous are the Displays*

*of thy Greatness... in the Creatures with which thou hast replenished those Worlds!"*⁷⁴⁷ During this entire period of literary and theological development, scientific speculation on the nature of extraterrestrial life was on the upswing. Spaceflight to other worlds was no longer viewed as wholly impractical; when Peter Heylyn compiled his *World Geography*, the Moon was described along with such other "imaginary" lands as Australia, New Guinea, and the Solomon Islands.¹⁸⁷²

Bernard de Fontenelle's *Conversations about the Plurality of Worlds* came out in 1686 and was an instant success. Not only did de Fontenelle conclude that intelligent beings must exist on worlds other than Earth, but he advanced the progressive notion that such beings would have those characteristics consistent with the environment of the world in which they lived.

Mercurians, therefore, were all hotheads in temperament. The inhabitants of Venus, the next planet out from the Sun, *"resemble the Moors of Granada, a small, black people, burned by the Sun, full of wit and fire, always in love, writing verse, fond of music, arranging festivals, dances and tournaments every day."* Jupiterians rarely encountered each other, since their planet was so large, and the extreme coldness of Saturn rendered the creatures there dull, torpid and sluggish in mind and body. It was suggested that the Moon might not be inhabited at all, because of the thinness of the atmosphere.¹⁹⁵⁰

The first full-length scientific book to deal seriously and specifically with the problem of extraterrestrial life was authored by the Dutch physicist and astronomer Christian Huygens. Entitled *The Celestial Worlds Discover'd* (1698), it contained many detailed theories and pursued with greater diligence the conform-to-the-environment theme de Fontenelle had also wrestled with.

Of the planet Mars, for instance, Huygens cautiously states : *"His Light and Heat is twice, and sometimes three times less than ours, to which I suppose the Constitution of his Inhabitants is answerable."* As for populating the Sun,* Huygens (unlike William Herschel more than a century later) is very pessimistic : *"That the Sun is extremely hot and fiery, is beyond all dispute, and such Bodies as ours could not live one moment in such a Furnace. We must make a new fort of Animals then, such as we have no Idea or Likeness of among us, such as we can neither imagine nor conceive: which is as much to say, that truly we have nothing at all to say."*⁶⁰²

Many 18th century notables freely gave their views on alien life. Emanuel Swedenborg (1688-1772), a Swedish scientist, mystic philosopher and theologian, fancied that Venus was inhabited by two distinct species of giants - one the gentle, religious, human herdsmen, and the other the cruel, savage plunderers *"whose favorite sport is eating what has been stolen."*⁴³

In a more serious temper, in 1728 Benjamin Franklin wrote : *"I believe that Man is not the most perfect Being but One; rather that as there are many degrees of Beings his Inferiors, so there are many degrees of Beings superior to him."*⁷⁴⁷ The so-called father of Russian science, Mikhail Vasilievich Lomonosov (1711-1765), published many poems of both satirical and scientific bent to communicate his belief in life on other worlds to his countrymen. And John Adams, who became the second President of the United States, made the following entry in his personal diary on April 24, 1756 : *"...all the unnumbered Worlds that revolve round the fixt Stars are inhabited, as well as this Globe of Earth."*

Legal philosophers likewise expressed interest in xenology at an early date. For example, Immanuel Kant's *Universal Natural History and Theory of the Heavens* (1755) set forth the then unorthodox proposition that while many worlds may be inhabited, not all planets will bear life. Furthermore, Kant felt it likely that *"celestial bodies which are not yet inhabited will be hereafter, when their development has reached a later stage."*

The great French philosopher Montesquieu (1689-1755) may be credited with the anticipation of modern metalegal concepts (see Chapter 25). He envisioned the possibility of humans having some form of legal relations with intelligent ETs. In his *De l'esprit des lois* (1748) he stated : *"Laws in the broadest sense imply relationship. That necessarily follows from the nature of things."*

*In that sense all beings have their laws.... Laws are relationships which exist between it and the different beings as well as the relations between these beings themselves."*³⁷²

And back across the English channel, the British political leader Lord Bolingbroke (1678-1751) wrote that ours may not be the highest intellect in the universe. In fact, said he, *"we may well suspect that ours is the lowest, in this respect, of all mundane systems."*⁷⁴⁷

2.4 Science and Science Fiction

In the early 19th century it was still maintained by many that the Moon must be inhabited, or else God's work would be wasted. Thomas Dick carried this idea to its absurd but logical conclusion in his nonfiction theological work entitled *Celestial Scenery* (1838). First, he noted that the rings of Saturn contain an area of more than thirty million square miles. *"It is not likely,"* he went on, *"that the Creator would leave a space equal to nearly six hundred times the habitable parts of our globe, as a desolate waste, without nay tribes of either sensitive or intelligent existence...."*¹⁸⁷²

By the mid-nineteenth century this view remained virtually unchanged. Father Angelo Secchi, a Jesuit astronomer, asserted of the planets : *"These worlds are bound to be populated by creatures capable of recognizing, honoring and loving their Creator."*¹⁹⁰⁵

But as the last century drew to a close, the English poetess Alice Meynell (1849-1922) sounded in verse what was to become the less-chauvinistic modern perspective :

"Doubtless we shall compare together, hear

A million alien Gospels...

O, be prepared, my soul!

To read the inevitable, to scan

The million forms of God those stars unroll

*When, in our turn, we show to them a Man."*⁷⁰²

This idea that ETs will have their own religions and their own gods has replaced "waste" as the central topic of exotheological debate.

Scientific speculations were often grossly unreliable and misleading, as evidenced by the "Moon Hoax" fiasco. In July of 1822 a German astronomer by the name of Franz von Paula Guithuisen had first reported observing a great walled city on the Moon, near the crater Schröter on the lunar equator. This caused quite a flap, and the stage was set.

The famous British astronomer Sir John Herschel (1792-1871) traveled to the Royal Observatory at Capetown, South Africa in 1834 to commence a full sky survey of the Southern hemisphere. The project was well known throughout the educated world at the time and, added to Gruithuisen's wild claims, may explain the widespread acceptance of Richard Adams Locke's concocted front page story on Sir Herschel's "amazing discovery" of inhabitants on the Moon.

Published in *The New York Sun* during the first week of September, 1835, the report (called "Great Astronomical Discoveries") claimed that Herschel had turned a powerful new telescope towards the Moon and had observed life there, including forests, bison-like animals, blue unicorns and finally, winged men and women : *"We counted three parties of these creatures, of twelve, nine, and fifteen in each, walking erect towards a small wood near the base of the eastern precipices. Certainly they were like human beings, for their wings had now disappeared, and their attitude in walking was both erect and dignified."*¹⁸⁷²

The entire first reprinting of 20000 copies was completely sold out on the day of publication.

During the second half of the 19th century the French scientist and popularizer Camille Flammarion wrote many discourses on the subject of extraterrestrial life. His *On the Plurality of Habitable Worlds* was a much-read general treatment of the subject. Another work, entitled *Imaginary Worlds and Real Worlds*, was a review of all previous writings on the habitability of worlds and the possibility of interplanetary communication.⁴⁵ In still another volume, *Lands in the Sky*, Flammarion stated with conviction : *"The Humanities of the heavens are no longer a myth. Already the telescope brings us in touch with their countries; already the spectroscope enables us to analyze the air they breathe.... From the bottom of our abyss we can visualize these far-away nations, these unknown cities, these extraterrestrial people !"*⁷³³

The publication of Darwin's *Origin of Species* (1859) was soon followed by the development of an idea advanced by Swedish chemist Svante Arrhenius : *"Life may be ubiquitous throughout the cosmos, carried from planet to planet by tiny space-spores (panspermia)."*¹⁹⁰⁶

The modern era of scientific xenology was ushered in with Henderson's important little book *The Fitness of the Environment* (1913), in which the Harvard biochemist attempted to demonstrate that both water and carbon are necessary in any living system on any planet in the universe.⁸⁷⁹ Superior astronomical data was becoming available, providing a still more accurate view of our solar system and galaxy.

The father of Russian astronautics, Konstantin E. Tsiolkovskii, wrote extensively on spaceflight and the possibility of ETs colonizing the Galaxy ahead of us. Alien civilizations, he pointed out, might well exist at many different levels of technological development;²⁰ in 1925, Tsiolkovskii summarized by noting the distinct probability that "perfection and dominance of the mind" have been spreading throughout the cosmos.⁷⁰²

Fictional treatments of extraterrestrial life proliferated. During the late 19th and 20th centuries the use of aliens became a vehicle for both romantic and far-flung scientific speculative statement.

Achille Eyraud's *Voyage to Venus* (1865) was the first fictional visit to that planet at a time when the idea of an inhabited Moon was virtually a dead letter.⁴⁵ In another trip to Venus, Garret Putnam Serviss's *A Columbus of Space* (1909), we find ape-like cave dwellers and beautiful telepathic humanoids.⁷⁴² John Munro painted a most delightful picture of life on Venus in *A Trip to Venus* (1897);¹⁸⁷² Edgar Rice Burroughs also took us to Venus and Mars, as did C. S. Lewis in his well-known trilogy.^{364,348} And Jupiter's steaming jungles, replete with dinosaurs and pterodactyls, appeared in John Jacob Astor's *A Journey in Other Worlds* (1894) -- along with a brief excursion to Saturn.⁷⁴²

Voyages to other stars began to be written. With the French author Charles Ischir Defontenay we are transported to the star system of Psi Cassiopeia, in his 1854 novel of the same name, for a quick dose of haunting space opera.⁵⁶⁴ David Lindsay's *A Voyage to Arcturus* (1920) likewise is a romance, describing a visit to the extrasolar planet Tormance by spaceship and various adventures with the inhabitants there.¹⁸⁷²

But it was certainly "Mars Fever" that inaugurated the present epoch of science in science fiction. In 1877, under unusual conditions of good seeing, the Italian astronomer Giovanni Schiaparelli observed what appeared to be "channels" crisscrossing the martian surface. Schiaparelli never maintained that his "channels" were relics of alien technology. Yet the word gained something in the translation into English : "Channels" became "canals," with the connotation of intelligent engineering efforts.

This was snapped up by Percival Lowell, an American astronomer who became so devoted to the search for life on Mars that he established an observatory in Flagstaff, Arizona for the sole purpose of studying the Red Planet.²⁰⁰⁹ His two books were widely read. *Mars* (1896) may have served as the scientific background for H. G. Wells' famous novel *The War of the Worlds* (1898) in which Earth suffers an invasion by martians. *Mars and its Canals* (1911) might well have served in the same capacity for Burroughs when he wrote *A Princess of Mars* (1917), *The Gods*

of Mars (1918), and classical sequels through 1940.

Mark Wicks' *To Mars via the Moon* (1911) is another enthusiastic depiction of Lowellian Mars: The telepathic martians are found to have advanced canal-building technology and a Utopian socialist system of government. *Lieutenant Gullivar Jones : His Vacation* (1905) by Edwin Lester Arnold is a fantasy in which we meet carefree, friendly, gracious, but apparently purposeless martians possessing an ideal political system. The martians in Hugh MacCoil's *Mr. Stranger's Sealed Packet* (1889) have voice-recording devices and electric lighting but are otherwise technologically inferior to earthlings. And in Robert Croniiie's *A Plunge into Space* (1890) we again find the frustrated hopes of finite humans projected onto more advanced aliens: Zero population growth has been achieved, workdays are only two hours in length, and the government is so perfect that there is no need for politicians!¹⁸⁷²

Two novels served as a bridge from romantic visits to alien planets in the 19th century to the modern era of science fiction. The first of these, Kurd Lasswitz' *Concerning Two Planets* (1897), is a fascinating tale of martians who differ little from men physically but are comparatively advanced in ethics, social and physical sciences. Since they are more advanced, Lasswitz reasoned, they will be the first to visit us and not vice versa.¹⁰³⁸

The second important work is the aforementioned *War of the Worlds* by H. G. Wells.¹⁹⁵¹ The interaction of man and alien is explored realistically for the first time. Man must realize that he may someday face enemies with *"minds that are to our minds as ours are to the beasts in the jungle."*¹⁹⁵¹ We must also learn humility, we discover: In the end the invaders are destroyed, not by Earth's pitiful military might, but by the lowly bacteria of our planet against which the aliens have no immunological defenses.

After the early 1900's the number of scientific and fictional investigations of the problems and benefits presented by intelligent extraterrestrial races rises almost exponentially. In 1929 Hugo Gernsback coined the term "science fiction,"¹⁸⁹⁶ and the cheap pulps of the 1920's gave way to the technological space opera of the 1930's and 1940's. Still more recently both science and science fiction have become remarkably sophisticated, dealing in detail with interstellar travel, extrasolar alien life, reasonable planetary environments conducive to the evolution of such life, and various particulars of possible alien physiology, sociology, and philosophy.

Xenology, the study of life on other worlds, is indeed "an idea whose time has come."

Chapter 3. The Aliens Among Us

"These {ancient astronaut} books may be pitiful stumbling efforts in the morasses of technical and historical scholarship... but as religion they are worthy of respect as picture-language wrestlings with the deep matters all persons face - or evade - in the stillness of the heart. On this level their scientific and historical failings may not matter so much."

- Ronald Story, in *The Space Gods Revealed* (1976)¹⁸⁷⁰

"I saw a disk up in the air,

A silver disk that wasn't there.

Two more weren't there again today -

Oh how I wish they'd go away."

- Men's room graffiti, White Sands Missile Range, New Mexico (1967)

"Where are they?"

- Enrico Fermi (1943)

"I am sure they saw something."

- Albert Einstein¹⁷

"Further extensive study of unidentified flying objects probably cannot be justified in the expectation that science will be advanced thereby."

- Dr. Edward U. Condon (1968)¹⁷

"By 2100 A.D. on Earth, three species of cetacean had been recognized as intelligent and admitted to the United Nations. Their lawsuit against the former whaling nations had not been resolved, and in fact never was. The cetaceans enjoyed the legal gymnastics too much ever to end it."

- Larry Niven, in "At the Bottom of a Hole" (1966)⁵⁴⁸

Closely paralleling the historical development of xenology has been the widespread but unverified conviction that aliens already are, or have been, visitors to Earth. Despite the pseudoscience cults and charlatans frequently associated with "ancient astronaut" and "flying saucer" theories, the hypothesis that intelligent extraterrestrials might have played some role in the evolution or emergence of human civilization is fascinating and certainly warrants critical study.

3.1 Xenoarchaeology

It has recently become fashionable to postulate that ETs landed on our planet ages ago, whether to influence our biological or social evolution, to collect zoo specimens, or to make anthropological surveys.^{1215,1221,1326,1327,1328} Extravagant speculations abound : One book attributes to alien benevolence the discoveries of subatomic physics, general relativity, and the double helix !¹⁸⁸⁰

Xenoarchaeology - the search for evidence of ancient visitation by interstellar travelers - is at best a difficult and confused field of study. Precisely because hopes and expectations are so high, it is often harder to maintain a strong, healthy skepticism. Hence, in the words of astronomer Carl Sagan, *"we must accept arguments for extraterrestrial visitations to earth only when the evidence is compelling."*¹⁸⁷⁰

At present, an exhaustive survey of all pertinent literature and other evidence fails to uncover a single incontrovertible case of past alien presence on our planet.

Of course there is nothing a priori absurd about the basic idea of ancient astronauts. The Hypothesis of Mediocrity allows that, as a general rule, when one goes exploring one finds inferior things.¹⁰⁴⁰ For example, Columbus discovered America because European transportation technology was well advanced beyond that of the native Americans. Were this not the case, the natives would have discovered Europe! It is plausible to conclude that if the Galaxy is teeming with life, a superior intelligence from another star system could have visited Earth for any of a myriad of good reasons.

Speculation has centered on three specific areas. First, there is the possibility that aliens arrived geological timescales (millions or billions of years) ago. Biochemical and genetic evidence has been marshaled in an attempt to demonstrate that our natural biological evolution may have been adjusted, enhanced or tampered with in some manner.

A second proposition is that extraterrestrial "gods" and "saviors" have materially affected the development of human society and culture. The most common evidence advanced in favor of this is the virtual ubiquity of legends describing visitors from the sky. Usually these yarns seem to suggest either that the human race was exported to Earth from other worlds, or that ETs came

among men and helped launch human civilization.

Naturally, a mere account of strange beings who live in the heavens and perform miracles is not compelling proof. (Where else might gods reside but in the skies?⁵⁵⁴) And the clear correlation between the movement of stars and constellations in the celestial vault and the changing seasons has probably been recognized at least since the emergence of Cro-Magnon man. Primitive belief systems often attribute divinity and magical forces to such regular features in the environment.

Yet how easy it would be for an alien humanoid to "curse" hapless natives with a portable x-ray machine! It may be that all interstellar First Contact operations include a Thaumaturgy Division, whose duty it is to create miracles and god-myths to keep the curious at a safe distance in the unlikely event of an emergency landing. These thaumaturgists could create spectacular displays to awe primitive onlookers, such as transmutation of drinking fluids, variable-rigidity lances, and advanced force-field technology (which might perhaps be demonstrated on local bodies of water).

The third specific area of xenoarchaeological research is the quest for alien artifacts and other physical manifestations of their presence. This is of great importance, because it is often urged that in such important matters *"the only acceptable evidence would be hardware."*³⁷³ For instance, the discovery of a piece of advanced electronics embedded in a coal seam millions of years old, accompanied by indisputably nonhuman skeletons, might be acceptable as convincing evidence of past visitation. Another common suggestion is that the aliens might have left a durable marker of some kind, such as the black monolith depicted in the science fiction movie 2001 : A Space Odyssey. In fact the Moon would be an ideal location: The artifact would last millions of years without disturbance and could only be detected by a reasonably advanced spacefaring civilization.

But we must beware of technological chauvinism in assessing possible artifacts. We can interpret certain objects as airfields, nails, or evidence of the use of nuclear explosives, but this is because we have just acquired this technology ourselves. Two hundred years ago the interpretation would have been much different; two centuries hence, it will again radically change. The fact is that the technology of space visitors will most likely be highly non-contemporary with our own.

The problems involved in tracking down evidence of extraterrestrial contacts in ancient times are vastly different from those of conventional archaeology and anthropology. It would not be remarkable if a few brief visits by ETs to limited areas of this planet have left no traces. Continental drift and tectonic shuffling, ice ages, volcanic activity and sedimentation will have taken their toll.

Archaeologists generally search for human settlements. Yet the chances of, say, a spacecraft crash landing near one of these is extremely small. It is highly unlikely that we could ever detect anything less than widespread, intensive alien involvement.

Let us assume arguendo that ten aerial vehicles crashed somewhere on Earth in ancient times, spewing their debris over a swath covering 10000m². If the affected stratum is one meter deep and lies under an average of 10 meters of sediment, this leaves about 10¹⁵ cubic meters of soil and rock to be examined.

If we then assume that all crashes occurred only over that 10% of the Earth's land area which is "interesting" to the ETs, and that there are ten archaeologists with suitable engineering and technical credentials searching full time for the sites (excavating an average of 10m³ each day per investigator), it would take roughly 15000 years just to have a 50/50 chance of finding a crash site. Even then, and assuming favorable corrosion conditions, the chances of spotting recognizable remnants of an accident would still be miniscule.

For these reasons and others, many have renewed the hunt for reconstructable contact legends passed down from early human civilizations. There is some reason to cautiously assert the validity of this technique, because we know that historical events have occasionally been faithfully

recorded in myth and folklore.

Perhaps the best-known of these was the first meeting between the Tlingit people on the northeast coast of North America and a European expedition in 1786 led by the French explorer Jean La Pérouse. The oral native account of the incident remained true to the original a century later, although some of the descriptions of advanced European technology (e.g., giant sailing ships) had acquired a distinct mythological flavor over the years.⁵⁵⁴ And many other accounts of such phenomena as supernovae¹⁵⁵⁷ and great floods⁸⁶² have likewise survived through centuries of verbal narration.

One useful test of the validity of legendary encounters with ETs might be whether or not information is contained in the tale which couldn't possibly have been generated by the primitive civilization itself.¹⁵ For example, an ancient manuscript containing modern circuit diagrams or a "holy number" worshipped throughout the ages (which turned out to be the transcendental e or the nuclear fine structure constant) might be sufficient if it could be independently authenticated.

Carl Sagan has articulated three factors which maximize the probability that an historical encounter with aliens would be recorded in a reconstructable manner:

1. The account must be committed to writing soon after the event;
2. The contacted society undergoes a major change because of the contact; and
3. The aliens make no attempt to disguise their exogenous nature.⁵⁵⁴

If these stringent requirements can be satisfied in even a single instance, xenoarchaeologists may be able to secure proof that Earth has been visited by intelligent ETs.

3.1.1 Extraterrestrial Intervention in Biological Evolution

The evidence that man's biogenetic evolution has been interfered with by aliens is scanty and highly questionable. Perhaps one of the earliest mythological accounts of possible biological experimentation on apes is mentioned in the Ramayama, the second of the great Indian epic poems. Hanuman the monkey god was supposedly conceived when Shivar (a dweller in the heavens) gave Anjana (an Earth ape) a sacred cake to eat. The monkey god thus born was super-strong and highly intelligent.³¹⁰ But despite the fact that Hanuman was followed by legions of other ape-heroes (Sugriva, Brahaspati, Bali, Tara and Gandha, among others), there was never any suggestion that these were the biological precursors of men.

Greek mythology is full of tales of "interplanetary adultery." Zeus, king of the gods, had scores of human concubines and was reportedly responsible for many rapes of human females. Apollo, Aphrodite, Hermes and Ares all had affairs with mere mortals. Yet most biologists today agree that a successful sexual mating between two species from different planets is improbable at best. Although lions and tigers have been crossbred in captivity (to make "ligers"), such is not the rule. Even Cro-Magnon and Neanderthal man, two species of humans, are not believed to have been interfertile.

Benevolent ETs would probably have come to Earth, not to hybridize or perpetuate their own genome, but to improve ours. This could easily be done using advanced genetic engineering to accelerate the normal evolutionary processes. The native myths of the Marquesas Islands, Hawaii, Indonesia and Tahiti all tell that the first men on Earth were given birth to by a celestial couple.³¹⁰ If one wanted to do this sort of thing and a humanoid was the desired end-product, it might make sense to modify some of the local primate stock. Marmosets and many other monkeys have the same number of chromosomes as man; gorillas, chimps and orangutans have only two extra.

Erich von Daniken has suggested something along these lines, although his factual support is

notoriously weak. He claims in his several books that man is an artificial mutation, separated from the ape stock long ago by alien intervention.¹²²¹ In *Chariots of the Gods* we find : *“Dim ages ago an unknown spaceship discovered our planet. The crew of the ship soon found out that the earth had all the prerequisites for intelligent life to develop. The spacemen artificially fertilized some human female members of {an advanced primate species}”*

They repeated their breeding experiment several times until they produced a creature intelligent enough to have the rules of society imparted to it. The space travelers destroyed the unsuccessful specimens, {fearing that men} might regress and mate with animals again.¹³²⁶

Unfortunately, no solid verifiable facts are adduced in favor of the hypothesis.

This area of xenoarchaeology has been severely handicapped by a dearth of qualified researchers and an excessive quantity of unusually poor scholarship.¹⁹⁴⁸ A case in point is *Mankind - Child of the Stars* by Max H. Flindt and Otto O. Binder.¹²¹⁵ Their proposal, simply stated, is that we are the hybridized descendants of intelligent extraterrestrials. Apparently following Larry Niven's excellent science fiction novel *Protector* first published seven years earlier,¹⁹⁰⁹ Flindt and Binder assert that the human race is merely a colony founded and maintained - and later abandoned - by beings from another world. Decades of detailed paleontological and evolutionary data are casually swept aside: We are asked to believe that man could not have evolved fast enough on Earth. Hence the "starmen" must be responsible.

Supposedly, humans are sexier than other animals because the ETs were downright lecherous. Not only did the starmen bring their own genes to Earth for our benefit, but "the primate line was imported"¹²¹⁵ as well. As if this were not enough, the authors of *Mankind* attribute the evolution of hundreds of species of food animals and other extinct creatures to the aliens' kindly influence. Again, factual support is totally nonexistent.

But serious xenoarchaeological theories are being pursued by competent scientists in spite of the deluge of popularized pseudoscience on the subject. Ronald Bracewell, a respected Stanford University radioastronomer, has proposed that it would be a fine gesture for a passing extraterrestrial to have seeded our then-sterile planet, billions of years ago, with the first microorganisms that would later lead to the evolution of intelligent life.⁸⁰

A less glamorous version of this conception of the origin of life is widely known as the Gold Garbage Theory. According to Dr. Thomas Gold of the Center for Radiophysics and Space Research at Cornell University, life here might have spread from a pile of waste products accidentally dumped on a barren Earth long ago.^{22,1910} A. G. Cairns-Smith, a well-known biochemist at the University of Glasgow in Great Britain, suggests that our original ancestors might have had alien biochemistries and has presented some (as yet nonconclusive) evidence to support this possibility.¹⁴⁶⁰

But the best-known of the "earth-seeding" ideas has come from two of the world's most eminent molecular biologists : Francis Crick at Cambridge, England and Leslie Orgel at the Salk Institute in San Diego, California. According to their theory, first presented in 1971 at the joint Soviet-American Byurakan CETI conference, organisms may have been directly transmitted to the Earth by intelligent space beings - deliberately.¹²⁸³ This "directed panspermia," as they call it, could be accomplished simply by sending out unmanned space probes bearing a ton or so of assorted microorganisms capable of infecting a sterile host planet.

Crick and Orgel cite as evidence the inordinately large role of the element molybdenum in terrestrial biochemistry, peculiar because it is such a rare substance. Chromium and nickel, which are 10 and 100 times more abundant in the environment, respectively, are relatively unimportant in biochemistry. The theory has been debated extensively in the literature without conclusion.^{1294,1295,1296,1911,2100}

3.1.2 Extraterrestrial Cultural Intervention

Early primates may have been set on the path of sociocultural development because of alien intervention, as portrayed in the popular production 2001 : A Space Odyssey.¹⁹¹² But there is no need to resort to fiction. Human folklore is replete with tales of interactions with strange beings from the skies.

Among the lesser-known myths is that of the Eskimos. Eskimo legends tell of being transported to the frozen northern lands in "giant metal birds". According to Pauwels and Bergier, attention has been drawn to curious cultural parallels between various archaeological sites located in Greenland, Siberia and Ceylon.¹⁹¹³ But apparently the claim cannot be authenticated.¹⁰⁰¹

One case which most nearly meets Sagan's three stringent criteria (see above) is the ancient Sumerian civilization.^{20,554} The Sumerians were profoundly affected by the Apkallu (possible representatives of an advanced, nonhuman, amphibious extraterrestrial society), who taught them laws, science and architecture. No attempt was made by the aliens to conceal their nature. However, the first requirement - that there be a contemporary written account - is partially lacking. The only description that has survived appears in the Babylonian Gilgamesh Epic (ca. 2000 B.C.), one of the oldest existing written texts in the world today. But second-hand reports are just not good enough.

The Sumer legend is interesting because the creatures are always spoken of as "beings," "endowed with reason," and "personages" -- but never as "gods"! Were it not for the unusual subject matter the account would doubtless be considered an ordinary historical event, as there are no mystical or super natural overtones in the writing.

Most other legends don't appear to represent a radical alteration of any culture. The 3500-year-old Egyptian bible called the Book of the Dead speaks of "those who with their knowledge reach the vault of the sky" and mentions "those who live among the stars".¹⁹¹⁴ Although the work purports to describe the life of Thoth, a god from the sky alleged to have given the people of the Nile the beginnings of science, literature and medicine, the Book of the Dead is laced with mythological serpents, devils and demons.

In India, the Mahabharata is one of two beloved epic poems. The twenty-volume work, written several thousand years ago, is a history of Indian religion and mythology. The poem speaks of "vimans" that fly through the air bearing gods. In another section, two legendary characters battle each other with incredible weaponry that causes the winds to blow. . .meteors lashing down from the firmament. . .a thick gloom. . .the sun no longer gave any heat. . .clouds roared. . . . The elephants and other creatures of the land, scorched by the energy of that weapon, ran in fright. The very waters heated, the creatures residing in that element. . . seemed to burn. The forms of the slain could not be distinguished.⁷⁴⁶

The Dogon of Mali in Africa worship a pyramid with a square, flat top, upon which it is said the "sky gods" landed during their visits in ancient times. Such beings supposedly taught the natives the essentials of surveying and agricultural techniques, but are always referred to as gods.³¹⁰ The tale, however, appears to be purely allegorical.*

About the time the Toltec and Mayan cultures were beginning to intermingle (ca. 900 A.D.) there arose the legend of Quetzalcoatl, a bearded, light-skinned man who flew down from the sky to teach men law, astronomy, math, art, and the cultivation of corn and cotton. The feathered serpent was his symbol, and the pyramid built in his honor is the largest in the world (it has a volume nearly 30% greater than the largest Egyptian structure). When Quetzalcoatl's mission to Earth was completed he returned to the morning star, promising to return someday.

The Mayans themselves are also fascinating because of the extreme accuracy of their calendar system. Furthermore, the units of time in the Mayan system included the alautun, a period of roughly 63,000,000 years ! One inscription describes events that occurred 90 million years ago, and another makes mention of a date 400 million years in the past.¹⁸⁴⁸ But without more, unfortunately, a long time-Sense alone cannot be considered compelling proof.

For those who wish to find evidence for extraterrestrials, the Christian Bible is chock-full of marvelous possibilities. The prophet Elijah, for instance, was protected by a fire that came down from heaven and destroyed 100 soldiers and their captains (IV Kings 1:9-12). Soon thereafter he was abducted by a "fiery chariot," and *"Elijah went up by a whirlwind into heaven."* (IV Kings 2:11). Similarly, Enoch is reported shanghaied by God (Genesis 5:24), although his tour of the "seven heavens" and subsequent return to Earth is published elsewhere (in The Book of the Secrets of Enoch).

Jacob wrestles with an angel until dawn and finally overpowers it (Genesis 32:22-33). After forcing the angel to bless him, Jacob releases it, exclaiming in relief : *"I have seen a heavenly being face to face, yet my life has been spared."* Daniel encountered a being on a "throne like flames of fire." (Daniel 7:9). In Revelations 4:1-6, Saint John observed *"a door standing open in heaven"* and then a throne *"from which proceeded flashes of lightning, rumblings, and peals of thunder... and before the throne was a sea of glass like unto crystal."* Seated on the throne is a humanoid, surrounded by twenty-four others (the "elders"). The list of biblical tales is virtually endless : *"The God to whom Moses frequently speaks appears to lack that strength of resolve we might expect from an omniscient deity. For example, when God is about to destroy Moses' people the prophet manages to talk the Lord out of it !"* (Exodus 32:7-14) Furthermore, Moses communicates with the being upon demand in a specially constructed Meeting Tent : *"As Moses entered the Tent, the column of cloud would come down and stand at its entrance while the Lord spoke with Moses."* (Exodus 33:9) And God seems strangely concerned with promulgating an ethical rule that prohibits maltreatment of foreign-looking humanoids: *"When an alien resides with you in your land, do not molest him."* (Leviticus 19:33)

Dr. Vyacheslav Zaitzev⁷⁴⁶ and Alexander Kazentsev⁹⁸¹ have theorized that both Jesus Christ and the biblical angels might have been ETs. (It is interesting to note that the births of both John the Baptist and Jesus were announced to the respective mothers by angels long before they themselves knew they were pregnant, and that both mothers were barren or virgin at the time.)

Then we have the problem of the Genesis Plurals. There are many of them, but two are of special concern here. The first is as follows: *"And God said, Let us make man in our image, after our likeness."* (Genesis 1:26) The fact that the plurals "us" and "our" are used gives rise to the speculation that many gods are involved, that is, extraterrestrials. But it is generally accepted that these particular plurals are a veiled reference to the existence of more than one person in God (i.e., the Trinity).

The second Genesis Plural is rather harder to interpret : *"And it came to pass. . .that the sons of God saw the daughters of men...and they took them wives of all which they chose. ... When the sons of God came in unto the daughters of men they bore children to them."* (Genesis 6:1-4) Who are these "sons of God"? More extraterrestrials?¹⁸⁴⁵ One common explanation is that they are the descendants of Seth and Enos. Ronald Story has suggested that they were "divine beings who belonged to the heavenly court."¹⁸⁷⁰ The issue remains unresolved.

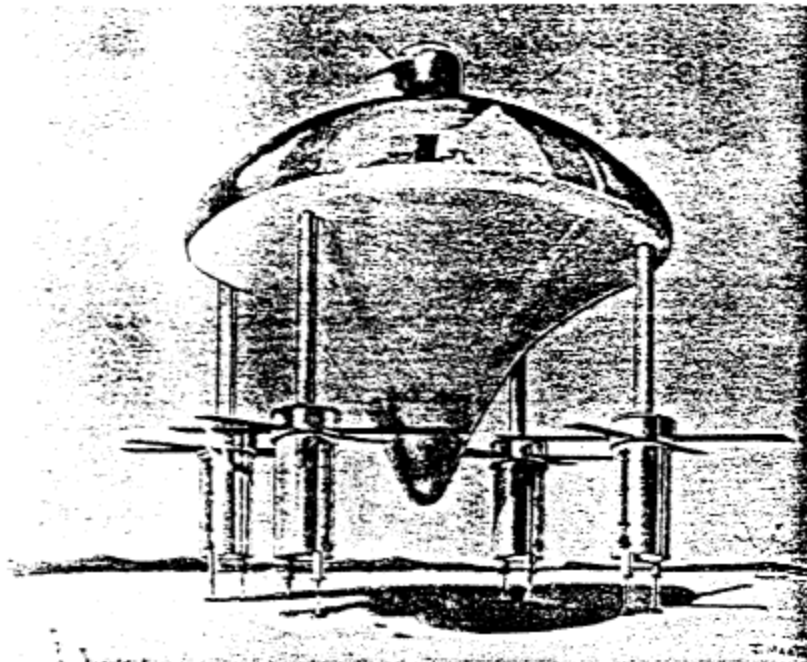
One of the most controversial "contact events" in the Bible may be found in the Book of Ezekiel. To pick one passage of many : *"Now it came to pass in the thirtieth year, in the fourth month, on the fifth day of the month, when I was in the midst of the captives by the river Chobar, the heavens were opened, and I saw visions of God. And I saw, and beheld a whirlwind come out of the north, and a great cloud, and a fire enfolding it, and brightness was about it, and out of the midst thereof...was the likeness of four living creatures; and this was their appearance; there was the likeness of a man in them. Every one had four faces, and every one four wings. Their feet were straight feet, and the sole of their foot... sparkled like the appearance of glowing brass. And they had the hands of a man under their wings on their four sides; and they had faces, and wings on the four sides, and the wings of one were joined to the wings of another."*

After this "landing," Ezekiel continues : *"This was the vision running to and fro in the midst of the living creatures, a bright fire and lightning going forth from the fire. And the living creatures ran and returned like flashes of lightning. Now as I beheld... there appeared upon the earth by the*

living creatures one wheel with four faces... a wheel within a wheel. When they went they went by their four parts, and they turned not when they went... And over the heads of the living creatures was the likeness of the firmament, as the appearance of crystal, terrible to behold, and stretched out over their heads above... And I heard the noise of their wings, like the noise of many waters... and when they stood, their wings were let down. For when a voice came from above the firmament that was over their heads, they stood and let down their wings. And above the firmament was the likeness of a throne, as the appearance of the sapphire stone, and upon the throne was the appearance of a man above upon it.” (Ezekiel 1:1-26)

According to the late Josef Blumrich, former chief of the systems layout branch at the Marshall Spaceflight Center of NASA, Ezekiel was confronted with an "Earth Excursion Module" (Figure 3.1) manned by an alien pilot.¹⁰⁵⁸ In *Spaceships of Ezekiel*, Blumrich presents detailed engineering analyses of a plug-nozzle planetary landing vehicle that has been seriously considered by aeronautical designers at NASA¹⁹⁷⁷ and elsewhere.¹⁰⁰¹ Its "wings" are helicopter blades affixed to four columns supporting the rocket mechanism (Figure 3.2). The aerospace engineer concludes that his design would be optimal for the required missions, which are: (1) Earth-to-orbit, and (2) Short surface-to-surface hops.

Figure 3.1. The spaceship seen from a distance of about 190 feet (from Blumrich¹⁰⁵⁸)



An example of the depiction of the traditional interpretation. The spacecraft began its flight to the earth with the separation from the mothership at an altitude of probably about 220 nautical miles. During the flight through the atmosphere, its speed was reduced by aerodynamic drag until eventually, at low altitudes, a brief firing of the rocket engine reduced the speed enough so that the spaceship could use its helicopters for the rest of the descent. This last phase of the flight, which begins with the brief firing of the rocket engine, was witnessed and described by Ezekiel.

Later he observes the spacecraft as it hovers a few feet above the ground in search of a suitable landing site. The brief bursts of the control rockets occur in a sequence seen as irregular by Ezekiel who construes them as lightning flickering in the space that separates the living beings. This diverts his attention from the fascinating beings to the area between them, and thus he now sees the radiator of the reactor glowing like smoldering coals.

The spacecraft has landed.

Wheels, which were housed in the lower portion of the helicopter units during the flight, have now been deployed. The straight legs with their round feet no longer touch the ground.

Wheels!