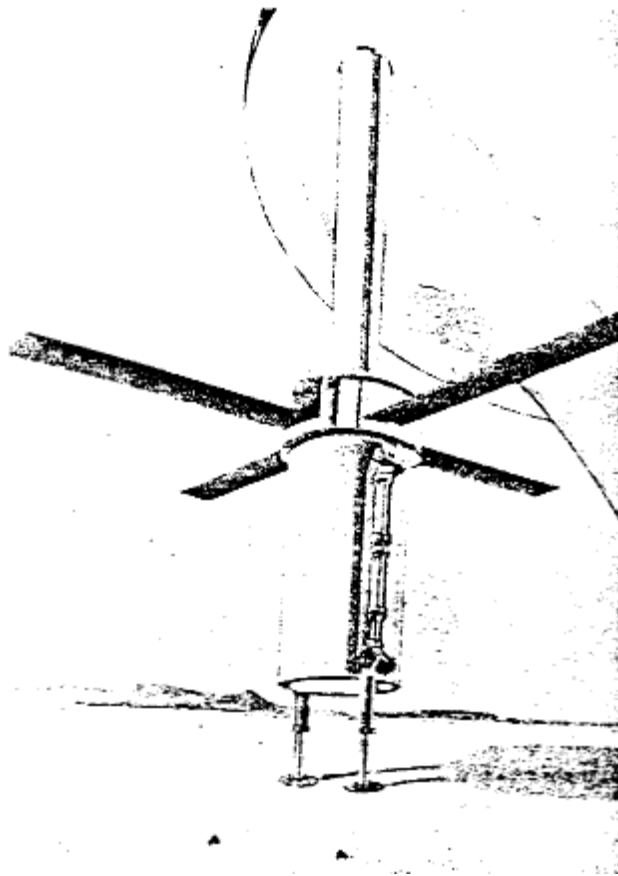


3.1.2 Extraterrestrial Cultural Intervention (suite et fin)

Figure 3.2. Helicopter unit seen from a distance of about 25 feet (from Blumrich¹⁰⁵⁸)



As the great archaeologist Heinrich Schliemann discovered the ancient city of Troy by accepting the Homeric epics literally, Blumrich has attempted to take Ezekiel at his word and reinterpret what the Hebrew prophet saw in terms of reasonable modern technology. Certainly it is doubtful that Ezekiel - a man of the 5th century B.C. - could have recognized the form or function of a bonafide spacecraft if he had seen one.

Unfortunately, most biblical reconstructions such as the above fall short of the three stringent requirements demanded by Sagan. Although the events described in the Bible clearly had an enormous effect on many cultures, the translated and retranslated record of whatever did happen 2000 years ago is now a hopelessly confused jumble of conflicting testimony. (The two accounts of Creation in Genesis, for instance, explicitly contradict each other!)

Besides the incorrectness of the astronomy and celestial mechanics in most biblical (and other) tales, the evidence here also fails because any hypothetical extraterrestrials apparently took great pains to generate a god-myth and conceal their exogenous nature. Unlike the Sumerian legends discussed earlier, the Bible is loaded with spiritual, mystical overtones which render virtually impossible the conclusive extraction of any historical visitation events that may be hidden there.

* It is interesting that the oral tradition mentions a "dark brother" of the star. Sirius.^{310,2022} In modern times it has been discovered that the Dog Star does possess a dark companion star, a fact unknown until a little over a century ago. Nevertheless, this can hardly be viewed as compelling evidence of extraterrestrial visitation because it is a trivial point which could easily

have been adopted at random by the Dogon.

** It is notable that until about the 6th century A.D., the Church did not accept the spiritual nature of angels but considered them to be physical beings without wings.

3.1.3 Extraterrestrial Artifacts and Manifestations

From time to time peculiar artifacts have turned up, often touted as remains of alien technology here on Earth. At best most of the finds are unauthenticated, unverifiable, and frequently irrelevant.

Perhaps the oldest known artifact is the so-called Salzburg Cube. This object was found in 1885 in a Tertiary Period coal seam by a Dr. Gurlt. It measured 67 x 67 x 47 millimeters (with a deep groove running around its middle), weighed about 785 grams, and was said to resemble in composition a hard nickel-carbon steel.⁶⁰⁰ However, mere steel should not have been able to survive 12-70 million years of the successive acid/alkaline reactions found in the decaying vegetation in a coal bed.¹⁰⁰¹ The Cube reposed in the Salzburg Museum in Austria until 1910, when it apparently was lost.⁴⁵

Bullet holes in prehistoric bison,³¹⁰ remains of screws,¹³²⁷ nails,⁴⁹ and sparkplugs (the "Coso Artifact")⁸³ have been unearthed, as well as handprints³¹⁰ and footprints¹³²⁷ molded in solidified sandstone, instruments,¹³²⁶ small gem statuettes,¹²⁶⁹ and peculiar coins.^{49,1001} A diffraction grating etched on a polished copper mirror was found in an early Egyptian (3rd or 4th Dynasty) tomb.⁴⁹ And about 700 strange granite disks were rumored recovered from caves in the mountains of Payenk Ara Ulaa in China, in 1938. These disks bore engraved symbols telling of creatures landing a craft and meeting the local natives.⁷⁴⁶ However, the lack of corroborating artifacts is suspicious.

The Baghdad Batteries are small ovoid jars capable of producing a weak current when filled with vinegar. About a dozen such objects turned up during heavy construction work near the capital of Iraq. Ronald Story has suggested that they might have been used for primitive electroplating of silver onto copper, certainly a far cry from advanced extraterrestrial technology.¹⁸⁷⁰

Another technological "gift from the gods" appears in the Bible. In Exodus 25:10-22 God tells Moses how to erect the Ark of the Covenant, which serves as a transceiver to heaven. The construction details of the Ark are such that when completed, Moses should have had a giant capacitor charged to a hundred volts or so.^{1915,778,1326} While it is true that an arch of acacia wood with gold leaf trimmings can hardly be considered advanced technology,¹⁸⁷⁰ the ability of ovens, cars and other metallic objects to audibly receive modulated radio broadcasts (on rare occasions) is a documented fact. If laboratory tests with models of the Ark can demonstrate this ability, a good case could be made in favor of alien influence: The ETs would simply have been ordering the manufacture of the simplest radio device manageable with the limited tools available to humans millennia ago.

Another Biblical tale often attributed to extraterrestrial activities is the "nuclear explosion" that destroyed Sodom and Gomorrah around 2000 B.C.^{1915,1326} As related in Genesis 19:24-28, "the Lord poured down on Sodom and Gomorrah sulphur and fire from out of heaven." Later that morning there was "smoke rising from the earth as though from a furnace."

But there are excellent grounds for believing that the cataclysm was the result of a great earthquake¹⁹¹⁸ followed by explosions of natural gas.¹⁸⁷⁰

Excavations at the site in 1928 revealed large burned out regions of oil, sulphur and asphalt overlying a subterranean salt dome 50 meters thick. There is clear geological evidence that "a great rupture in the strata took place centuries ago."¹⁸⁷⁰

There are countless other artifacts which could and have been attributed to space visitors, including the following: The construction of the pyramids and mummification technology,^{1326,1915} the Baalbek terraces as launching platforms,^{746,1326} the rustproof iron pillar in India,¹³²⁶ the Nazca desert "spaceport" in Peru,^{1326,1915} the subterranean tunnels and golden tablets of Juan Moricz in Ecuador,¹⁹¹⁶ the giant cement cylinders of New Caledonia,⁸³ the peculiar statues on Easter Island,¹³²⁶ and the "catastrophic results of a landing attempt" in Tungus, Siberia in 1908,^{600,2202} Unfortunately, more prosaic explanations exist in all cases.^{80,1758,1870,1917,2008}

3.2 Ufology

Flying saucers and their progeny are largely a product of the Space Age. Since we now possess rudimentary spaceflight capability, people ask, could not aliens as well? This kind of reasoning has given added plausibility to the reports that Earth is now being regularly visited by ETs possessing high performance aerial vehicles with remarkable maneuverability (Mach-10 speeds with no sonic booms, right angle turns, vertical takeoff and landing, etc.)

This is not to suggest that the problem of UFOs ("Unidentified Flying Objects") is a new one. Humanity has been seeing strange lights in the sky for thousands of years. In 213 B.C. in Hadria, an "altar" was seen in the sky followed by the appearance of a humanoid in flowing white robes.¹⁶⁷³ There were at least a dozen similar sightings during the next two hundred years. In 100 B.C., Pliny observed "a burning shield scattering sparks {as it} ran across the sky at sunset from east to west."⁷²⁰

The phenomena persisted into later times. In Nuremburg in 1561, for example, there reportedly was a mass sighting of flying balls and discs in the neighborhood of the rising sun.¹⁹²⁰ The great astronomer Edmund Halley in 1716 apparently saw an object that illuminated the night sky so brightly that it could serve as a reading light for several hours.¹⁶⁷³

It is easy to find thousands of "flying saucer" sightings, especially if we are willing to suspend our scholarly scepticism and uncritically accept all such accounts as being factual descriptions of aliens buzzing our planet. Most scientists would agree that there are many peculiar things to be seen in the heavens; it is the modern interpretation, by and large, with which they take issue.

A recent poll of the members of the American Institute of Aeronautical and Astronautical Engineers turned up sightings from only 2% of the sample of 1175 scientists.¹⁹¹⁹ But popular polls yield different results. In 1966 pollster Gallup found that more than five million Americans claimed to have seen what they believed was a genuine UFO.¹⁷ By November, 1973 the number had climbed to fifteen million (fully 11% of the adult population), and for the first time a majority of the American public believed that UFOs were real.¹³⁴⁷

The literature in this field^{1790,1791} is extremely variable in quality, and opinions tend to be highly polarized with little rational debate. Typical books written by "uncritical believers" include those by Leslie and Adamski,¹⁷⁸⁷ Edwards,¹⁶³⁹ Lorenzen,¹⁶⁷² Sanderson,⁶³² Keyhoe¹⁶²³ and Holzer.¹⁸⁵⁸ (In 1974 one "ufologist," Ralph Blum, confidently predicted that "by 1975 the government will release definite proof that extraterrestrials are watching us."¹³⁴⁷) Slightly less credulous, perhaps, are Vallee,^{787,1189,1673} Cohen,³³¹ Hynek,^{341,597} Saunders and Harkins,¹⁷⁸⁹ McCampbell,¹⁷⁷⁸ and Emmeneker,¹⁶⁴⁰ who present facts somewhat more cautiously while maintaining their devout belief in the mysterious. Finally we have the debunking books written by the "hardened skeptics," such as Menzel,¹⁷⁸⁸ McCrosky and Broeschenstein,¹⁷⁹² Condon,¹⁷ Klass,⁶⁹⁵ and Story.¹⁸⁷⁰

3.2.1 Why Believe in UFOs ?

Why is support for the Extraterrestrial Hypothesis (that UFOs are craft piloted by aliens) so widespread today? Part of the explanation must be the renewed interest in the subject of life on other planets. Ufologist B. L. Trench listed nearly 20 worldwide UFO investigative organizations;⁵⁹⁶ his favorite - Contact - had branch offices in 27 countries in 1971. And the

television-viewing public eats it up. When the series "The Invaders"* was brought out about a decade ago, the American Broadcasting Company sold the show to fifteen foreign networks as well.⁶⁹⁵

But there is much more to the phenomenon than the current fascination with xenological topics. Man has always had religion, it is said, both to preserve moral values and to impart a measure of predictability and uniformity to the environment. In a world where morality seems as fluid as the winds and where total annihilation may be only 15 minutes away, traditional religions have been unable to supply the answers to many hard questions. It is this uneasiness about the future that has given rise to what Ronald Story appropriately labels the "new mythology".¹⁸⁷⁰

The ancient-astronautists spawned by Erich von Daniken's writings, and the contactee cults such as the Aetherius Society,¹⁸⁷⁰ The Two,¹⁹²¹ and Gabriel Green's Amalgamated Flying Saucer Clubs of America³³³ are extreme examples of a belief pattern suffusing our entire culture. Many people have begun to view extraterrestrial visitors not merely as friendly, but as technological angels who will guide us successfully through the uncertain years ahead.¹³⁴⁷

Just as the biblical angels were the mythical beings proper to the age of early Christianity, UFOs and their benevolent alien occupants are the mythical beings proper to the Space Age.⁶¹⁵ The famous psychiatrist Dr. Carl Gustav Jung did not find it at all surprising that scientific instead of religious imagery would be used by many to assimilate the accelerated pace of modern civilization.¹⁹²⁰ Flying saucers serve as a partial substitute for God.³⁴⁶

A related idea is the Status Inconsistency Theory of UFO sightings proposed by Donald I. Warren, a University of Michigan sociologist.³³⁶ In this theory the belief in flying saucers is linked to the degree to which a person feels alienated from society. Persons who perceive their social status (as measured by, say, income) as different from their abilities or true worth (e.g., education, ethnicity) have been found to be more likely to report UFOs than those who do not have this internal conflict. Such inconsistency forces the individual to withdraw from society to a certain extent, and the resulting void is often filled by a belief in extraterrestrial benefactors. Another modern dilemma is the virtually universal distrust of governments and politicians, and a nostalgic yearning for the great leaders of the past. There is much evidence that the known propensity of the authorities to classify and conceal has done little to reassure the public that no pertinent information on flying saucers is being withheld from them.^{18,694,1347} For example, a poll taken in 1971 by the engineering periodical *Industrial Research* showed that 76% of the respondents believed the government was hiding some of the UFO facts. Since paranoia is self-reinforcing, the conviction that aliens are commuting to Earth has not been dampened by official proclamations to the contrary.

Finally there is the problem of boredom in daily life. With more leisure time on our hands than ever before, we seek amusement and fun. Certainly the discovery of beings from another world would be both an amusing and exciting distraction from routine. As Story points out tongue-in-cheek: "Who knows? They might even let us ride in one of their spaceships!"¹⁸⁷⁰

Carl Sagan believes that flying saucers are a kind of psychological projective test - a "cosmic Rorschach" - by which humans project their hopes, frailties and self-perceptions onto alien beings.¹⁵ As he says, "the idea of extraterrestrial visitation resonates with the spirit of the times in which we live."¹⁸

* The theme was that aliens are infiltrating our government as a prelude to conquest of Earth.

3.2.2 The Evidence for UFOs

While it is certainly true that hidden xenoarchaeological treasures may lie veiled forever in ancient legend and folklore, the observational data for flying saucers are frequently completely worthless. As British writer Maxwell Cade notes, *"there is clear evidence of much fraud, more hysteria,*

and still more wishful thinking."⁴⁵ Such bitter experience has taught us that when we have an emotional vested interest in a particular result and expectations run feverishly high, we must demand only the most scrupulous honesty from ourselves and refuse to accept any but the most rigorous, compelling evidence.^{20,562}

Most researchers would be delighted to find extraterrestrial life because it would be such a momentous discovery. Perhaps the strictest rule of evidence in xenology is that all conclusions must be compelled by the facts. There must remain no rational alternative explanations.

L. Sprague de Camp has set forth the following criteria by which to judge the authenticity of UFO reports : (1) The report must be first-hand; (2) The teller must show no obvious bias or prejudice; (3) The teller must be a trained observer; (4) The data must be adequate and available for checking; and (5) The teller must be clearly identified.¹⁹²² A case which satisfies these requirements, and which can perhaps be checked independently with a large number of witnesses, would be considered reliable by the majority of the scientific community.

But in addition to being reliable, UFO reports must also be exotic. An exotic case is one which is inexplicable in terms of common phenomena; for example, a strange moving light in the sky could be an aerial refueling operation, a satellite passing overhead, a police helicopter with a searchlight, etc.¹⁵

Sagan maintains that to date there are no reliable cases which are exotic, and no exotic ones which are reliable.¹⁸

Can flying saucers exist ? Sagan himself has presented an interesting paradox which apparently rules out the possibility of ufonaut exploration of Earth. If there are many advanced civilizations in our galaxy then there is probably nothing terribly unusual about what is going on here. Hence, there is no urgent reason for aliens to go to the enormous expense of visiting us. On the other hand, if there are few technical cultures around, there won't be enough of them advanced enough to send visitors !¹⁵

Skeptics often cite the fact that observed UFOs are totally nonstandardized in size and shape - repeat visits by the same craft are rare. In general we would expect such standardization from experienced aliens, since the retention of a single configuration over a long period of time is possible only when its design has matured. Given a specific mission and a specific level of technology, an optimal definitive form can usually be found. So how can we explain the fact that UFOs appear to be shaped not only as cigars and disks, but also cubes, spheres, doughnuts, insect shapes, etc. ?

Other arguments purporting to dispute the legitimacy of UFOs have been submitted by Friedman,⁶⁹⁴ Sagan,^{20,1317} Abell,¹⁹⁰⁸ and Chiu.¹³¹¹ The logic proceeds as follows: Using the acceptable estimates that there are a million communicative extraterrestrial civilizations (in our galaxy of 200 billion stars) each having a lifetime of ten million years, then if each culture dispatches one exploratory starship per year, Earth - by random chance - should be visited only about once every 100000 years. Of course, if the ETs discovered something interesting happening on our planet they'd come more often to keep closer tabs on us. What is not clear is whether humans are of such inordinate interest as to justify the large investment of alien time and resources that ufologists claim is being made.

When dealing with ufology the careful reader will always bear one additional question in mind : If we put ourselves in the aliens' shoes, what is the most rational way to go about planning a successful first contact effort with a planet like Earth ? Although this xenological problem is explored in greater depth later on, a few issues can profitably be raised now :

1. Disturbance of the system - Since they are the ones with high technology, they will not fear us.¹²⁰⁸ Thus the greatest danger to the enterprise is that of observer influence (a common problem in measurement science).^{77{?}} If the mere act of observation will disrupt or destroy

the system under observation, it behooves the observer to minimize that disruption. As Richard J. Rosa of Avco Everett Laboratories puts it : *"A hundred years {may be} of little consequence to them. The fact that Columbus did not hesitate to talk to the Indians was not without consequences that were unfortunate for Europe and tragic for the Indians. Perhaps our interstellar visitors have learned to be more cautious -- and considerate."*³⁴⁴

2. Minimizing the disruption - An advanced society can certainly make a planetary survey without the primitive indigenes knowing about it.³⁷⁷ As added security in maintaining anonymity, aliens and their artifacts could sport many clever disguises.⁴⁹ Ufologist Jacques Vallee notes : *"To make ultimate detection impossible, {the aliens} would have to project an image just beyond the belief structure of the target society."*¹¹⁸⁹ In fact, it is rather difficult to explain why, if they wish to avoid contact, the UFOs allow themselves to be seen at all.⁷⁴⁷

3. Standard first contact procedures - Spacefaring ETs will undoubtedly be experienced at the business of contacting other cultures. The following has been suggested by anthropologists familiar with the problem : *"Exploration will proceed in a series of ordered steps. At each star the team will investigate the system and locate any planets. If they find a planet they will evaluate its habitability, physical resources and life forms. If any signs of intelligent life are discovered the survey team will have to decide whether to withdraw or attempt contact. This will involve careful observation from a distance to acquire information before actually making contact. At first, in order to gain language skills and social understanding, contact will be limited to individuals in small groups. In this way we can increase the chance of success at the official, formal meeting with ET leaders to arrange recognition and continued contact."*⁶¹⁵

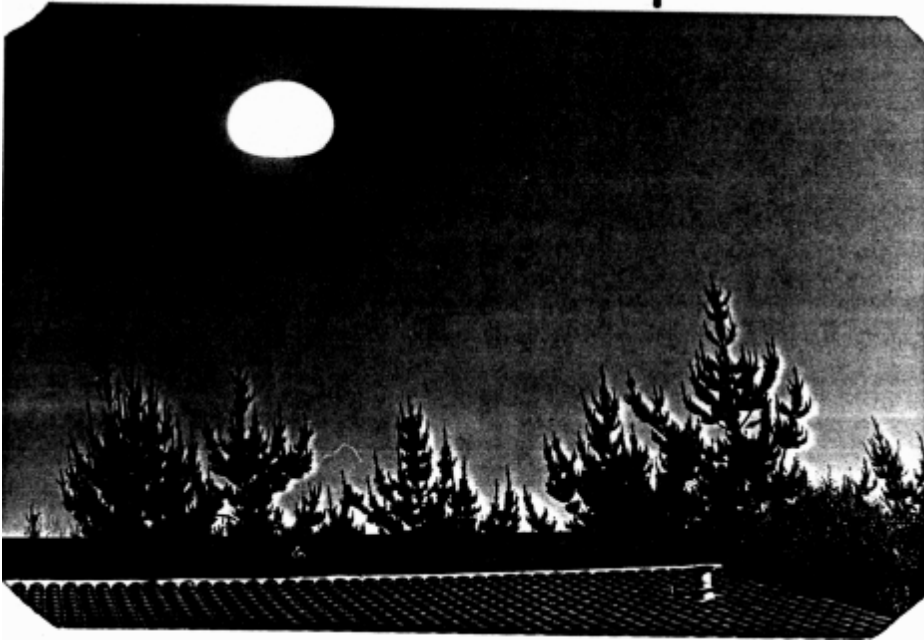
Most rational observers would agree that the vast majority of sightings are the result of misidentification of familiar objects viewed under unusual conditions of lighting, weather, and so forth.¹⁸ There are also a multitude of outright hoaxes and exaggerations on record. For instance, in what Time magazine called the "gullibility experiment," three Cal Tech undergrads launched helium-filled polyethylene balloons from which were suspended metal rods with vanes and lighted railroad flares. Throughout the Los Angeles area reports came in of red, orange and green lights in the sky that moved at "fantastic speed."³³⁵ Similar deliberate hoaxes were arranged two years later near Castle Rock, Colorado.¹³¹²

Not all sightings of flying saucers can be summarily dismissed as hoax, weather balloon, or ball lightning.^{337,339,345} Dr. David Saunders at the University of Colorado has collected more than 70000 unidentifieds and has placed them in a computer indexing and retrieval system.¹⁷⁸⁹ There even seems to be enough data for meaningful statistics to begin to appear.

According to Poher and Vallee, both computer specialists, several trends and conclusions have already emerged : (1) The frequency of UFO reports increases with increased atmospheric visibility (which would not be the case if they were hoaxes); (2) the number of sightings is a bell-shaped distribution as a function of the logarithm of sighting duration; (3) the number of reports increases for objects farther away from the observer; and (4) the data show a peak a few hours before midnight, and a smaller secondary peak a few hours after midnight.⁷⁸⁷

What kind of information would be needed to really verify a UFO sighting ? Eyewitness accounts are unreliable, heavily dependent upon the observer's education, health, emotional state, and predisposition to falsehood. The kind of evidence that would be really compelling must be primarily physical. Photographs, for instance, are generally regarded as hard evidence by scientists. But pictures showing aliens, lights in the sky, or actual UFOs in flight are extremely easy to fake, as illustrated by the shots in Figure 3.3. (The author made a double exposure of a street light with a telephoto lens.)

Figure 3.3. UFO photographed by the author on March 30, 1976



Photographed by the author using Pentax Spotamatic and Kodak ASA-125 Plus-X Panchromatic. The object appears to fly off to upper right in the frame. See text for details.

After fifteen years of looking into the UFO phenomenon, NICAP (National Investigations Committee on Aerial Phenomena) director Stuart Nixon reported in November, 1972, the following conclusion regarding the literally thousands of photos he had received : *"NICAP has never analyzed a structured object picture that is fully consistent with the claim that an extraordinary flying device was photographed. In every case, there has been some small detail, or group of details, that raised the suspicion of a hoax or mistake."*⁶⁹⁵

As Philip Klass aptly notes, there are more than 80 million cameras in the United States alone shooting roughly 5 billion still photos every year.⁶⁹⁵ Deft cameramen have managed to capture on film such rare occurrences as meteor falls, tornadoes, and plane crashes. And yet there is not a single photograph of UFOs or their occupants which can stand the strictest scrutiny and compel

our acceptance of its authenticity.*

What about astronomical photography ? Each night hundreds of telescopes turn skyward to record events occurring in the heavens. Thornton Page, Chairman of the AAAS Special Committee on UFOs, states that *"professional telescopes are not an efficient patrol net for extraterrestrial visitors"* because they don't see enough of the sky often enough.³⁴⁰ However, the Smithsonian Prairie Meteorite Network has sixteen wide-angle Schmidt telescopes covering an estimated 440000 square miles of the Earth's surface. Canadian and Czech meteor networks add a small additional area to the coverage.

According to Page's calculations, assuming a 50/50 chance of a UFO being photographed by one of the networks and given that none have so far been detected, there can be no more than 690 luminous UFOs worldwide per year. If we just look at the United States, the upper limit becomes only 25 objects per year. (That is, if more than 25 UFOs were tracking across our skies each year, then the chances would be better than 50/50 that at least one of them would be spotted by a network telescope and recorded on film.) In conclusion, observational astronomy can neither convincingly rule out nor compellingly affirm the existence of UFOs.

How about radar sightings ? Although it is true that many UFOs have been detected on radar screens in the last few decades, a radar return need not always correspond to a real physical object. For instance, it was discovered early in World War II that meteor trails could cause radar echoes.⁴⁹ Birds and swarms of insects produced baffling returns until the true cause was ascertained.¹⁷⁷³ Temperature inversions, so familiar to the inhabitants of the smog-filled Los Angeles basin, can cause radar beams to bend along a "duct," thus permitting the detection of objects much farther away than normal.¹⁷⁸⁸ Radar signals can bounce off clear air turbulence or reflect back from patches of air whose temperature, humidity, or ionization differ from their surroundings.¹⁸

Naturally, the Early Warning BMEWS network would be ideal for picking up UFOs. In 1966 it was reported that more than 700 "uncorrelated targets" were being detected monthly.¹¹⁸⁹ Unfortunately for ufologists, the BMEWS, SAGE, and NORAD computers automatically discard any object that appears not to be following a ballistic trajectory or an Earth-orbital ellipse.^{18,597} And some really good cases of combined visual and radar tracking are probably being withheld for security reasons (e.g., "spoofing" tests, etc.). But Sagan and Page have pointed out that even a combination visual and radar sighting might not indicate a solid body - it could be an aurora, for instance, or mistaken identification.¹⁸ We see that it is only through the concatenation of many independent sources of confirmation that the authenticity of a UFO report can be compellingly demonstrated.

Figure 3.4 UFO-Related Objects and Phenomena^{17,18}

- **Meteorological** - subsun, sundogs (parhelia), moondogs (paraselene), lenticular clouds, noctilucent clouds, mirages, "dust devils", St. Elmo's fire, grindstone clouds, solar reflections on low-hanging clouds, lightning (ball, streak, chain, sheet), Brocken ghosts, green fireballs(around NaCl crystals or dust), swamp gas flickers (ignis fatuus, methane combustion,"will-o-the-wisp"), large flattened gliding hailstones, sun glint off shiny objects, rainbow-related phenomena, bolides, ducted ground light reflection, ice flakes, coronal effects, tornado lightning, volcano lightning, Earthquake-Associated Sky Luminescence (EASL), Agl used in cloud-seeding, pile d'assiettes clouds(stack of coins), ice halo, pilot's halo
- **Astronomical** - meteors, fireballs, satellite reentries, auroras, planets (Venus, Mars, Jupiter, Saturn), stars (Capella, Sirius), objects seen through haze/jet trails or magnified by temperature inversion, Moon, sunspots and solar flares, comets
- **Experimental and Technological** - balloons sandwiched between dense air layers, test aircraft unconventional aircraft, helicopters with bright lights, high-altitude projectiles, rocket launches, contrails, aircraft reflection or after burners, bomb tests, refueling operations, searchlight reflections, military flares, satellites, blimps, parachutes, radiosondes and pibals, landing lights
- **Physiological and Psychological** - autokinesis (perceived motion of stationary objects),

autostasis (perceived stopping of moving objects), "airship effect"(perceived connection of separate sources), "excitedness effect", hallucination and mass hysteria, afterimages, autosuggestion(seeing what one is looking for), entopic effects(retinal or vitreous humor defects within the eyeball), motes on the cornea(perceived as spots), astigmatism and myopia, failure to wear glasses, reflections from glasses, religious invention

- **Photographic** - development defects, internal camera reflections lens flare, deliberate fakes (moon, street lamps, garbage can lids, phonograph records, hubcaps, lens cap suspended by thread, straw hat, Frisbee, models, window glass reflections)

- **Radar** - temperature inversions and ducting effects, ionized gases in upper atmosphere, angels, bogies, phantoms, false returns (ice-laden clouds, birds, insects), "window" (long strips of chaff), ranging/calibration balls, hot-air bubble reflections

- **Biological** - airborne debris(leaves, feathers, milkweed seeds), "angel hair"(gossamer spider parachutes), birds or flocks of birds, insect swarms, luminous fungi on birds, fireflies, glowing owl eyes, seagulls, moths, tumbleweeds

- **Industrial** - detergent foam, soap bubbles, refuse from defective filter in chemical-industrial plant (milk, rayon), smoke plumes

- **Miscellaneous** - kites, firefly trapped between window panes, radio astronomy dish, plastic bag with candles or flares, searchlight & headlight reflections off clouds, flashing ambulance light, tossed lighted cigarette, fireworks displays, reflection off building's windows, airborne loose paper, beacon lights and lighthouses, water tanks, lightning rods, TV antennas, weathervanes, hoaxes

Despite prosaic explanations (Figure 3.4, Table 3.1), occasionally more exotic physical evidence will turn up. Coral Lorenzen described a detailed chemical and spectroscopic analysis of the alleged remains of a UFO which exploded off the coast of Brazil, near Ubatuba, in 1957.¹⁶⁷² The metal fragments were touted as magnesium metal purer than any manufacturer could have produced at the time of the catastrophe.

The case was investigated by the Air Force-sponsored Condon Committee study group in Colorado, authors of the 1000-plus page report on UFOs that came out in 1969.¹⁷ It turned out that magnesium of suitable purity had been produced, though only in relatively small batches, by one American company several years prior to the event at Ubatuba. In no case to date has any piece of an alleged alien spacecraft shown signs of other than terrestrial manufacture.¹³¹²

Table 3.1 UFO Sightings and Unidentifieds - U. S. Air Force Project Blue Book^{17,18}

	Sightings	UFO		Sightings	UFO		Sightings	UFO
1947	122	12	1955	545	24	1963	399	14
1948	156	7	1956	670	14	1964	562	19
1949	186	22	1957	1,006	14	1965	887	16
1950	210	27	1958	627	10	1966	1,112	32
1951	169	22	1959	390	12	1967	937	19
1952	1,501	303	1960	557	14	1968	375	3
1953	509	42	1961	591	13	1969	146	1
1954	487	46	1962	474	15	TOTAL :	12,618	701 (~5,6%)

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Other physical evidence (largely unconvincing) was also examined during the two year study at the University of Colorado, including stalled automobile engines, evidence of strong magnetic field fluences,** circular burn marks and "landing pad" depressions on the ground, broken tree limbs, and so forth - all to no avail.

A growing number of UFO reports in recent times involve observation of the alien occupants themselves. For example, the following articles appeared in the British Flying Saucer Review, perhaps the oldest and most respected ufology journal in the world : "Violent Humanoid Encountered in Bolivia" (1970 case - includes photograph of parked UFO and humanoid posing nearby);⁷⁷⁵ "The Humanoid at Kinnula" (1971 case - close encounter with genuine "little green man");⁷⁷⁷ "The Extraordinary Case of Rejuvenation" (1973 case - advanced medical knowledge imparted telepathically by humanoid aliens with "round ears and slit eyes," standing roughly 1.8 meters tall);⁷⁸⁰ "Remarkable Encounter at Draguinan" (1974 case - a group of French UFO enthusiasts are accosted by three silvery humanoids more than two meters tall);⁷⁸⁵ and "UFO Landing and Repair by Crew" (1974 case - light-skinned, eight-foot-tall humanoids garbed in "wetsuits" are observed giving their flying saucer a tune-up in the forest, using wrenches and screwdrivers).⁷⁸²

Perhaps the first alleged contactee in modern times was the medium Helen Smith. Her travels in space were published in 1900 along with a dictionary for translating Martian into French.¹⁹²⁴ More recently, everything from sexual seduction of humans by aliens¹⁶²³ to miraculous cures of myopia and rheumatism¹³⁴⁷ has been attributed to direct contact with UFOs and their occupants. One of the more notorious contactees was the late George Adamski, who claimed to have shaken hands with visitors from Venus when they landed in the desert near his hamburger stand in the early 1950's.^{1193,1787} (Adamski has since been shown to be a fake by a member of the British UFO Society.²⁸⁹)

And then there are the persistent rumors that UFOs have crashed and their contents are being studied in secret by the government.⁸¹⁴ One unconfirmed report states that the bodies of twelve tiny humanoids are being kept in cryogenic suspension in Hangar 17 at Wright Air Development Center near Dayton, Ohio. The alien corpses, and various parts of a flying saucer, are supposedly the remains of a UFO crash in the New Mexico desert in 1948.¹⁶⁷²

Probably the most celebrated contactee case is that of Betty and Barney Hill, alleged to have been abducted aboard a spacecraft on September 19, 1961, and given a thorough medical examination by ETs.¹⁷⁹⁵ (Betty was able to recall the incident via hypnotic investigation five years later, though Barney apparently could not.⁶⁹⁵) One of the few corroborative pieces of evidence is a star map which Betty had been shown by the alien pilot, and which she later reproduced from memory. Marjorie Fish, an Ohio schoolteacher, attempted to fit the map to the known positions of actual nearby suns in space. The fit she came up with contains fifteen Sol-like stars which all lie in a single geometric plane and center on what is presumably the extraterrestrials' home sun : Zeta Reticuli.^{351,1775}

Carl Sagan and Steven Soter have disputed the authenticity of the Fish interpretation of the Hill map, but the case remains one of the most fascinating of its kind on record. Zeta Reticuli is a double star system, each sun believed to be suitable for the evolution of life as we know it and separated by a mere 0.05 light-years (only 1% of the distance to our nearest neighbor, Proxima Centauri). Unusually rapid technological advancement on the part of the sentient inhabitants of either of the Zeta Reticuli stellar systems might well result from the tantalizing closeness of the two stars. As the giant, luminous Moon beckoned to man throughout the centuries, perhaps the Zeta Reticulans too would find the challenge irresistible - only sooner.

* The two best-known motion picture films of UFOs in flight, a total of 1425 frames shot in Utah

and Montana in the early 1950's,¹⁹²³ are highly questionable.⁶⁹⁵

** In case anyone is interested, I have in my files a circuit diagram for a most unusual piece of equipment - entitled "The Electronic UFO Detector".⁷⁷⁰

3.2.3 The UFO Game

The National Enquirer is offering a reward of \$50000 to the first person to submit incontrovertible proof that UFOs are of extraterrestrial origin.¹³⁴⁷ Entries have been submitted, but the prize has yet to be awarded.

Fighting fire with fire, Philip Klass in *UFOs Explained* declared he was so certain that UFOs are not piloted by aliens that he would personally refund the full price of his book to any purchaser if positive proof to the contrary ever comes to light.⁶⁹⁵ As an additional expression of confidence, Klass has extended a \$10000 bet to any and all takers that UFOs are not extraterrestrial spacecraft. The jackpot pays off if any one of the following events occurs : (1) Any crashed spacecraft or piece thereof is found that clearly has extraterrestrial design or construction, in the opinion of the U.S. National Academy of Sciences; or (2) the U.S. National Academy of Sciences reaches the same conclusion based on other pertinent evidence; or (3) *"The first bona fide ET visitor, who was born on a celestial body other than the Earth, appears live before the General Assembly of the United Nations or on a national television program."*⁶⁹⁵

What are UFOs ? Besides alien spaceships, these possibilities have been proposed: Time travelers from our future^{789,1189,1845} natural or artificial biological mechanisms,⁶³² Satanic devils,⁵⁶² and remote-controlled robots and androids.¹⁶²³ Vallee claims that UFOs may be a purely "psychic" event akin to mass telekinesis,⁶⁵⁹ while astronomer-ufologist J. Allen Hynek warns us that "we may have to face the fact that the scientific framework, by its very internal logic, excludes certain classes of phenomena of which UFOs may be one. . . . It should not surprise us if a phenomenon that is inaccessible to a scientific procedure appears irrational."⁵⁹⁷ However, while few serious ufologists would categorically assert that flying saucers are manifestations of extraterrestrial life, many consider it to be the leading hypothesis.¹⁴⁴⁸

As for future research, Hynek has quietly organized the Center for UFO Studies in Northfield, Illinois. A toll-free hotline phone number has been distributed to law enforcement and other government agencies to make UFO reporting fast and convenient.¹⁶⁷¹ An independent UFO-watch station crammed with more than \$20000 worth of sophisticated electronic gear has been set up on a 400-acre site 20 miles northwest of Austin, Texas. The equipment at Project Starlight International (as the observatory is called) includes a 30-meter-diameter circle of sequenced spotlights and a low-power helium-neon red light laser to attract the saucer's attention - should one be spotted nearby.¹⁹²⁵

Although it is probably the opinion of the majority of physical scientists that no compelling evidence now exists for extraterrestrial UFOs, it would be unreasonable not to continue to pursue ufology with an open mind. Judgement cannot be passed until all the evidence is in.

3.3 The Resident Aliens

The thrust of the chapter thus far has been the search for evidence of ETs on Earth in both ancient and contemporary mythology. But we must be careful not to overlook a possibly limitless source of alien intelligence indigenous to our own planet.

Until quite recently it was supposed that the basic mental capacities of thinking or reasoning - intelligence - served as a clear distinction between humans and other members of the animal world. Today we know we're not so unique. It appears that virtually all living creatures possess at least the rudiments of intelligence; many elements of intellect appear in varying degrees across the phyla of the animal kingdom (especially the chordates and mollusks). Intelligence is therefore

not a quality peculiar to humans or mammals alone but is developed and refined by all lifeforms.

The textbook definition of intelligence is : "The capacity to utilize experience in adapting to new situations." But what do we really mean by intelligent behavior? Even a virus could be said to be "learning" when its DNA changes to adapt to new environments.

There are two approaches. The first is functional, keying on the important functions of intellect such as the capacity for self-awareness.

The second approach is structural : What is the ultimate mental capacity of the neural network of a creature, viewed as a system ? The structural approach allows facility of comparison between various animal species, and the results are rather interesting. The analysis focuses on a single organ possessed by virtually every animal - the brain.

While it is widely recognized that high intelligence is the product of an elaborate brain,^{439,443,1000} a few qualifications are in order. First, within the normal range of variations of a species among its members, difference in brain size is unrelated to the intelligence of the individual animal.⁴⁴⁴ As much as 800 grams has separated human brains of apparently equal intelligence. And since organ proportions change during growth, only mature average organisms can be validly compared. Brain size is a valuable criterion only when we compare differences between adult members of different species of animal (Table 3.2).

Table 3.2 Brain Sizes for Various Animals*

Species	b(brain, gm.)	B(bod y,kg.)	Species	(b/B)	Species	b•(b/B)**
Fin whale	6800	58,000	Rotifer	10 %	MAN	1.00
Humpback whale	6440	39,300	Antbear	4.8 %	Dolphin, Phocaena	0.8
African elephant	5710	6,550	Canary	4.7 %	Dolphin, Tursiops	0.8
Sperm whale	4020	39,000	Tzactl hummingbird	4.2 %	White whale	0.6
White whale	2350	375	Vampire bat	3.3 %	African elephant	0.2
Dolphin, Phocaena	1740	142	Chipmunk	3.0 %	Chimpanzee	0.1
Dolphin, Tursiops	1700	140	Mole	2.9 %	Walrus	0.07
MAN	1350	70	MAN	1.9 %	Gorilla	0.06
Walrus	1130	667	Dolphin, Phocaena	1.2 %	Humpback whale	0.04
Hippopota	723	1350	Rat	1.2 %	Thoroughbr	0.04

mus						ed horse	
Giraffe	700	1220	Dolphin, Tursiops	1.2 %	Polar bear	0.03	
Thoroughbred horse	672	464	Fox	1.1 %	Fin whale	0.03	
Rhinoceros	655	764	House cat	0.98 %	Deer	0.03	
Gorilla	600	250	Quail	0.86 %	Fox	0.02	
Polar bear	507	318	Chimpanzee	0.84 %	Rhinoceros	0.02	
Chimpanzee	440	52.2	White whale	0.63 %	Alaskan husky	0.02	
Guernsey cow	425	472	Honeybee	0.58 %	Tiger	0.02	
Tiger	302	209	Octopus	0.48 %	Sperm whale	0.02	
Deer	210	65.1	Alaskan husky	0.41 %	Giraffe	0.02	
Alaskan Husky	131	31.8	Deer	0.32 %	Hippopotamus	0.01	
Tiger shark	108	200	Gorilla	0.24 %	Guernsey cow	0.01	
Octopus	68	14	Walrus	0.17 %	Octopus	0.01	
Fox	53.3	4.63	Polar bear	0.16 %	House cat	0.01	
Old World ostrich	42.1	123	Thoroughbred horse	0.15 %	Antbear	0.008	
House cat	27.6	2.82	Tiger	0.14 %	Chipmunk	0.002	
Antbear	4.29	90 gm.	Guernsey cow	0.090 %	Tiger shark	0.002	
Rat	3.05	250 gm.	African elephant	0.087 %	Rat	0.001	
Chipmunk	2.07	70 gm.	Rhinoceros	0.086 %	Canary	0.001	
Mole	1.17	40 gm.	Giraffe	0.057 %	Mole	0.001	
Python (snake)	1.12	6.14 gm.	Tiger shark	0.054 %	Vampire bat	0.001	
Vampire bat	0.935	28 gm	Hippopotamus	0.054 %	Old World ostrich	0.0006	

Canary	0.75 5	16 gm.		Old World ostrich	0.034 %	Tzactl hummingbir d	0.0003
Quail	0.73	85 gm.		Python	0.018 %	Quail	0.0002
Tzactl hummingbir d	0.20	4.8 gm.		Humpback whale	0.016 %	Python (snake)	8 x 10 ⁻⁶
Honeybee	6.9 x 10 ⁻⁴	.12 gm.		Fin whale	0.012 %	Honeybee	2 x 10 ⁻⁷
Rotifer	2.4 x 10 ⁻⁷	2.4 x 10 ⁻⁶ gm.		Sperm whale	0.010 %	Rotifer	9 x 10 ⁻¹⁰

* Adapted from Altman Dittmer,³⁶⁸ Spector,⁴⁸ Lilly,²¹⁷ Allen,³⁰⁹ Portmann-Stingelin,⁹⁶⁰ and Buettner-Janusch.¹⁹²⁷

** Normalized to 1.00 for man.

Note : b is average species adult male brain weight, in grams. (b/B) is fraction of body weight represented by brain. The last column, b•(b/B), is the product of both these factors. A large value indicates that the organism has both a high brain mass and a high brain-to-body weight ratio, which raises the presumption of higher intellectual capacity.

Further, size alone is not a sufficient determinant of the depth of intellect although it does fix the perimeters of mental complexity. Other factors such as neuronal density, complexity and design of brain tissue convolutions, size and efficiency of neurons, average number of intersynaptic connections and so forth are also important. Gross bulk, while a rough correlate of intelligence, is not a precise measure of it.^{565,2560}

It is difficult to say exactly where the threshold of human intelligence lies. It is known that human infants become facile with language only after their brain mass exceeds 800-1000 grams.²¹⁷ Yet this is not a reliable cutoff point because, for instance, chimpanzees (brain weight 440 grams) raised in human company have acquired vocabularies of as many as 200 different word-symbols. Dogs, with smaller brains still, utilize a larger repertoire of signals than do many primates (but this may be because primates are vegetarian browsers while dogs are pack hunters requiring reliable intragroup communications¹⁵⁴²). Conversely, the walrus (brain weight 1130 grams) is not known to have any symbolic language at all.

Besides absolute brain size, the relative size of the organ with respect to the rest of the body is also important. This ratio is representative of the investment made by the organism in intelligence as a survival mechanism. (It is known, for example, that even the brains of some social insects are relatively larger than those of some vertebrates.⁹⁶⁵)

Of course, these are only rough indicia of intellectual capacity, good only for comparing the order of magnitude of a creature's mental acuity. But it is a safe bet that, in general, a 1000 gram brain will be smarter than a 100 gram brain, and a brain which represents 10% of the total body weight will be more complex than one which only embodies 1% of the total.^{20,965}

Were we to find on this planet other conscious minds with whom we might converse, it would be an excellent opportunity to practice our communication skills - before attempting first contact with

ETs with whom we share no common biological heritage. We might also discover some problems the extraterrestrials may confront in trying to deal with us, and learn to anticipate the solutions. Are there resident aliens on Earth ?

As can be seen in the last column of Table 3.2, the cetaceans (dolphins and whales) come closest to man in terms of both absolute and relative brain size. Much has been written about the intelligence of cetaceans in popular fact^{15,1698,1699,1929} and fiction.¹⁹³¹ Their brains are highly convoluted and larger than human brains, and they are extremely social animals (aggregations of up to 100000 individual saddle-backed dolphins have been observed roaming the open seas⁵⁶⁵). Anecdotes of friendly and helpful attitudes towards men abound. There are reports of porpoises saving persons from drowning, guiding ships through narrow, fog bound straits, and even of performing psychological¹⁵ and psychophysiological²¹⁷ tests on their human captors.

It is most difficult to measure dolphin intelligence and social abilities.¹⁷²⁴ The famous undersea explorer Jacques Cousteau has pointed out four basic conditions necessary "for the elaboration of a civilized society." These are : Brain, hand, language, and longevity.¹⁷²³

Porpoise and other cetaceans have brains nearly equal to our own, and possess lifespans of many decades. Whether or not they have a language remains to be proved. It is known that the humpback whale sings songs that often last more than 30 minutes and which are repeated with amazing accuracy.¹⁹³¹ Each season the songs are different.⁴²² Dolphins, too, are capable of amazing mimicry of sounds and human speech. They could have a language of their own : One anecdote tells of a porpoise held in captivity and later released which emitted a long, involved sequence of sounds in the presence of a school of dolphins it had encountered.¹⁵

Unfortunately, cetaceans do not have hands; any intelligence they may have cannot be worked out in technology. Sagan has hinted that the dolphins' creative energies might have been diverted to social instead of material technology. Asks he : *"Are whales and dolphins like human Homers before the invention of writing, telling of great deeds done in years gone by in the depths and far reaches of the sea ?"*¹⁵ Apparently a single whale song contains roughly the same number of bits of information as *The Odyssey* does! Cetaceans may turn out to be *"fluked philosophers... introverts who can think but not do."*⁹⁶

All this has motivated Arthur C. Clarke to proclaim : *"There seems little doubt that dolphins think and speak much more rapidly than we do... And yet after decades of dedicated research into human/dolphin communication no major breakthroughs have occurred. Either the animal is not as intelligent as we had hoped, or communication with alien minds is a far more demanding task than anticipated."*

Of course, the very fact that we have a vested emotional interest in finding porpoises to be intelligent should raise a flag of caution to the xenologist. The cardinal rule of evidence in xenology is that evidence must be compelling to be convincing. And most zoologists would agree that at present no such evidence exists in favor of cetacean super-intellect.^{565,1723}

Hence, while the dolphin possesses a huge brain and an exceptional ability to mimic, this does not necessarily imply consciousness or even high intelligence. Elephants, whose brains are more than three times larger than those of cetaceans, are known with reasonable certainty to possess an intelligence far below human level.⁵⁶⁵ Mynah birds and parrots are capable of imitating human speech rather well. The much-heralded altruistic cooperative behavior of marine mammals in rescuing injured comrades is also observed in wild dogs, African elephants and baboons,⁵⁶⁵ and may even be instinctual as a result of environmental necessities. Sociobiologist E. O. Wilson claims that delphinid, communication systems are no larger nor more complex than that of other mammals or birds.⁵⁶⁵ The common consensus among zoologists appears to be that the intelligence of the bottle-nosed dolphin can be ranked somewhere between the dog and the rhesus monkey.^{1724,1932}

This should not be taken as conclusive that cetaceans are not extraordinarily intelligent; the simple fact is that we just don't know yet one way or the other. Certainly no evidence exists that would rule out this possibility. But because of the great potential inherent in such a discovery, we owe it to ourselves both to continue delphinology research with vigor and to demand compelling evidence before accepting specific conclusions.

As John Lilly has pointed out, there are two dangerous pitfalls to be studiously avoided during first contact. First is the danger of anthropomorphizing - of assuming that the alien creature possesses the same psychological constitution as humans. The second danger is what Lilly calls zoo morphizing, the mistake of denying the existence of high intellect in complex, large-brained creatures solely by inference from data on much smaller-brained animals.²¹⁷ (Brian Aldiss addresses this very question in his science fiction satire *The Dark Light Years*.²²⁶)

Perhaps to truly comprehend the mind of the dolphin we shall have to learn to "live wetly." We must be willing to climb down into a tank of water and live as the alien himself lives. Both Lilly²⁰¹ and Brunner⁴⁴² have suggested that this may be the only way for true interspecies understanding to occur. A kind of primal empathy must be established between the two communicators.

Despite the tremendous promise of cetacean intelligence research, hundreds of thousands of dolphins are ruthlessly slaughtered for food each year by the Japanese and Russians. Our own merchant fleets have been killing comparable numbers incidental to tuna fishing operations.*

During the 1800's whalers caught perhaps one animal per ship per month, but during the record catches of the last decade the average ship was hauling in a carcass every day.^{422,1928} The explosive harpoon used by whalers has caused intense pain and suffering:

A 150 lb. weapon carrying an explosive head which bursts generally in the whale's intestines, and the sight of one of these creatures pouring blood and gasping along on the surface, towing a 400-ton catching vessel by a heavy harpoon rope, is pitiful. So often an hour or more of torture is inflicted before the agony ends in death. I have experienced a case of five hours and nine harpoons needed to kill one mother blue whale.⁷¹⁰

Although it is true that *"the exploiters of the cetaceans are spoiling our relationships to them,"*²⁰¹ this is almost a trivial observation. There is a much larger lesson to be learned here.²⁰³⁶

Speciesism is a chauvinism so fundamental that its unabated continuance could wreck our relations with alien intelligences. As Peter Singer, a philosopher currently associated with La Trobe University in Australia, defines it : *"...{Speciesism is} to discriminate against beings solely on account of their species, {an unethical practice} the same way that discrimination on the basis of race is immoral and indefensible."*⁷¹²

Most of us are devout speciesists. Each year in the United States we condone the slaughter of ten million pigs, thirty million cattle, and more than three billion poultry animals to adorn our dinner plates. Sixty million rabbits, rats, and other pain-feeling creatures are tortured annually in experiments frequently unnecessary or useless.

Singer explains the moral dilemma this way : *"The modern philosophy of "equality," strictly speaking, is false. There are no two humans who are strictly equal physically or mentally. The scope of equality (unless tied to self-interest) must therefore be determined by some objective criterion, some common characteristic capable of distinguishing those who are equal from those who are not. The problem is that any trait possessed by all humans will also be possessed by some nonhuman animals; if the conditions are tightened so as to eliminate these animals, some humans will then be eliminated. (Check, for instance, the criteria of pain-feeling, rational thought, memory, etc.)"*

Most distinctions that can be drawn between humans and other animals are not sharp and

unmistakable. Zoologically, most attributes smoothly blend into a continuum among the many animal species. And yet whenever there is a clash of interests, even if it is a choice between the life of a nonhuman animal and a human palate, the interests of the nonhuman are disregarded.⁷¹² No amount of pain and suffering on the part of our fellow creatures seems too high a price to pay for the slightest whims of people.

This attitude is most unhealthy from the xenological point of view. If mere membership in the Homo sapiens club is sufficient to grant us ethical license to cruelly maim laboratory animals, why cannot superior, research-minded aliens pick out "mere humans" for similar honors? If we may brutally slash and torment bulls in bullfights, why might not ETs be able to similarly justify the staging of gladiatorial mortal combats between "human dumb animals"? If we allow ourselves to eat the nonhumans who share this planet with us, what ethical barrier can stand in the way of highly-evolved, hungry aliens seeking to augment their menu with hairless primate meat?¹⁹⁴⁹** Speciesism is clearly one of our most dangerous chauvinisms.^{2115,2118,2136}

When sentient lifeforms are found elsewhere in our galaxy, we'll need all the help we can get from terrestrial interspecies communication research. Experience must be gained in empathizing with nonhuman bodies, minds, and environments. Such experience will give us the unique opportunity to view human culture through alien eyes, a necessary preliminary to our understanding of how extraterrestrial aliens may evaluate us. And communication with resident aliens would be a major step towards the goal of eliminating our speciesist biases.

As Carl Sagan poignantly observes : *"It is not a question of whether we are emotionally prepared in the long run to confront a message from the stars. It is whether we can develop a sense that beings with quite different evolutionary histories, beings who may look far different from us, even "monstrous," may, nevertheless, be worthy of friendship and reverence, brotherhood and trust. We have far to go; while there is every sign that the human community is moving in this direction, the question is, are we moving fast enough ?"*¹⁵

* The use of any marine mammal for food in the United States was outlawed by the Marine Mammal Protection Act of 1972. A white meat preparation known as mahi mahi (or "dolphinfish") is fish and not porpoise-flesh (which is full of hemoglobin and therefore dark red in color⁶³³) as some mistakenly believe.

** More than a decade ago, science fiction author Michael Kurland (and others) drew up a list of advantages in joining the Galactic Federation, to be presented to the United Nations should the appropriate occasion ever arise. At the top of the list was the following: All intelligent species shall have the right not to serve as food for other races.⁷⁸