



# ANCIENT SKIES

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## Official Logbook of the Ancient Astronaut Society

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### IMMANUEL VELIKOVSKY AND THE SCIENTIFIC METHOD

BY KENNETH C. MC CULLOCH\*

Shortly after the Second World War, Dr. Immanuel Velikovsky, in a series of books, suggested that drastic changes had taken place in the Solar System within recent historical times. In 1950, his book Worlds in Collision presented a scholarly account of a series of cataclysms in ancient times, with voluminous references to ancient writings and legends. (1) It told of drastic reshuffling of planetary orbits, the near-collision of several planets, and in general, such a revolution of prehistory, history, geology and astronomy as the world has seldom seen. Within a few years he had published two more books describing various aspects of the same theme, Earth in Upheaval (2) and Ages in Chaos (3).

The response of the scientific community was immediate, and disgraceful. Attempts were made by prominent scientists to prevent publication of Worlds in Collision. When it was published, a form of blackmail was adopted, forcing the original publisher of what had become a best-seller to transfer the rights to another publisher, one who did not have a textbook department. The whole sordid mess is beyond the scope of this article, but it is well documented in the book Velikovsky Reconsidered (4). The title of one of the papers in this volume is "The Scientific Mafia," which accurately describes the level on which the scientific community, with a number of notable exceptions, responded to Velikovsky's works. Ultimately, the scientific community will probably react like many people did to the advances of space travel - first, they opposed it, then tried to ignore it, and finally announced that they had favored it all along.

Already there are quite a number of papers referring to predictions of Velikovsky which do not re-

cognize his priority on the subject. These are well documented in Velikovsky Reconsidered. I am not in a position to check the possibility that some of his predictions may have been published somewhere else previously, and not noted at the time.

Many lay persons have the idea that scientists are zealously devoted to the search for Truth, and when new evidence is presented which indicates the need to modify previously-held ideas, they will unhesitatingly modify their theories. The truth is that scientists can be (and sometimes are) as bigoted and narrow-minded as a medieval clergyman.

In Worlds in Collision, Velikovsky suggested that Venus was a newly-created planet, which, before settling down in the stable orbit it now occupies, nearly collided with the Earth on a number of occasions. Before the inner planets settled down, on a number of occasions several centuries later, Mars also came close to colliding with the Earth. This thesis was well documented from ancient sources all over the world. The most startling part of his thesis, to my mind, was the idea that Venus was, with in historical times, somehow torn out of the planet Jupiter, and escaped from there to the inner part of the Solar System. In Earth in Upheaval, Velikovsky provided evidence in support of the same theory from geology, archaeology, and paleontology. In Ages in Chaos he provided evidence suggesting that ancient chronology needed to be amended, by lopping off a total of 500 years. This was also due to the effects of the close planetary encounters which he has described.

Velikovsky's theory had a number of features which could be experimentally verified. At a time when most astronomers were saying that Venus was not much warmer than the Earth, he predicted that Venus would be found to be very hot. Subsequent observations by U.S. and Soviet space-craft, and also ground-based observations, showed that the surface temperature was over 800°F. He predicted that Jupiter would prove to be a radio source; this was later found to be true. He predicted that Venus would prove to have anomalous rotations and a massive atmosphere. Venus' atmosphere was found by Soviet space-craft to have a surface pressure of about 90 times that of Earth. Venus' rotation was found, much to the astonishment of the scientific world, to be slow and retrograde, with the same face turned toward the Earth at each inferior conjunction. Another test suggested by Velikovsky was to measure the temperature of Venus' cloud layer at regular intervals. If Venus were very old, there would be no change in temperature. If Venus were as young as Velikovsky suggests, there should be a slow but progressive decrease in temperature. Evidence cited in Velikovsky Reconsidered indicates that this may be the case. However, only a short time interval was considered there. As more time passes, the difference should increase, and will be easier to measure unequivocally.

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\*This article is based upon portions of the author's book, Mankind: Citizen of the Galaxy, published by Rings of Saturn Publishing. The 300 page oversize paperback (8 1/2 x 11) is an excellent reference work in the fields of ancient astronauts, ancient mysteries, UFOs, space travel, the Moon, Atlantis, Pyramids and many others. The author lists some 1,000 books, articles and periodicals in the fields, digesting many of them for the reader. The book can be obtained from the author's address: P.O. Box 3440, The Pas, Manitoba, CANADA R9A 1S2.

Mr. McCulloch graduated with honors in astronomy from the University of Toronto in 1955 and has worked as a meteorological observer at remote weather stations in Canada for 30 years. Currently he is stationed at Eureka, NWT, where he is working on a detailed Index of the first 12 volumes (72 issues) of Ancient Skies. The Index will be made available to Society members when completed.

(Continued from previous page)

Velikovsky also stated that Venus' atmosphere would prove to contain hydrocarbons, derived from the atmosphere of Jupiter, which contains at least one such compound, methane. There are formidable problems in making ground-based observations of the spectrum of Venus in order to measure its hydrocarbon content. It is not yet definitely established whether or not hydrocarbons are present in the Cytherean atmosphere. The main components are carbon dioxide and nitrogen; also present are argon, water vapor and possible carbon monoxide. The clouds in the atmosphere appear to be made up of droplets of sulphuric acid, extending roughly from 45 to 770 km. above the surface.

The eruption of El Chichon in 1982 in Mexico dumped a great quantity of sulphuric acid into the upper atmosphere of Earth. As there are at least two areas on the surface of Venus which are suspected of volcanic activity, it would be well to monitor this activity as often as possible, to find out if the level of activity is constant or not. Perhaps some of the acid in the atmosphere of Venus is produced by volcanic activity, as is the case here. The cloud density should be monitored also.

Most of the data cited by Velikovsky in Worlds in Collision consisted of ancient manuscripts from all over the world, many of which told of calamities, cataclysms, day or night prolonged (in some cases to several times the normal duration), calendars which no longer worked (often with considerable detail), rescheduling of festivals because of the adoption of new calendars, etc. What made all of this necessary, he said, was that, at some time before 1500 BC, Venus was formed from a large mass expelled (initially in the form of a "comet") from Jupiter. In due course this body was in a rather eccentric orbit, with aphelion near the orbit of Jupiter. The planets Earth, Moon, and Mars were not in their present orbits at that time. From numerous references Velikovsky deduced that the terrestrial year was originally 360 days in length. In the middle of the second millennium BC the comet-like Venus came very close to Earth on two occasions, 52 years apart. There were earthquakes, floods, volcanic eruptions, and a seeming never-ending darkness, caused by volcanic dust, etc. This was, he said, at the time of the Exodus of the Israelites from Egypt. At this time, about 1500 BC, Thera, a volcano north of Crete, erupted, bringing to an abrupt end the Minoan civilization on Crete. Following these calamities, there were several hundred years of respite for the people of Earth. However, all was not tranquil elsewhere in the Solar System. Venus and Mars at some time came close together; later, Mars and Earth came very close to colliding. According to Velikovsky, these two close encounters of Earth and Mars were in 747 and 687 BC. They were not as disastrous as the two encounters with Venus, due to the much greater mass of Venus. The details of the changes of orbits of Venus, Earth, Moon and Mars are too involved to discuss here; however, there is an excellent account of them in Velikovsky Reconsidered. Velikovsky also cited evidence suggesting that, in addition to changes in orbital period, there were also changes in the lunar month, and in the location of the poles.

Any astronomer who may be reading this will no doubt consider Velikovsky's statements on astronomical subjects to be absurd, and will wonder why I bother to discuss the subject. This discussion is not addressed to them, but primarily to those readers who, for a variety of reasons (which I will not go into here), consider Velikovsky's ideas to be quite good. Space does not permit including all of the arguments for and against; these are listed in the various books cited in this article.

In Earth in Upheaval and in three later books by Velikovsky, Oedipus and Akhenaton (5), Ramses and His Time (6), and Peoples of the Sea (7), the auth-

or presented many carefully documented examples to support his theory that the accepted chronology of Egyptian history was in error and that many events occurred some 600 years later than supposed. This theory was far-reaching in consequence, because the chronologies of many other cultures are tied to that of Egypt, such as the Syrian, the Persian, the Greek and the Babylonian.

In 1982, there appeared the first of several books Velikovsky had been writing at the time of his death in 1979. This was Mankind in Amnesia (8). The amnesia he refers to befell Mankind as a result of the catastrophes described in his earlier books. These experiences were so traumatic that people, collectively, tried to erase them from their conscious memories. One result of this collective amnesia is that, at the present time, it is difficult to piece together exactly what happened, and how people responded to it. This is particularly important at the present time, because once again Man is on the brink of disaster, this time one of his own making. Velikovsky is considering this problem from the viewpoint of a psychoanalyst.

The scientific community reacted as it did when Velikovsky started writing his books, first, because he was a medical doctor writing in a field in which he had no formal credentials. That is, he had not been trained to recognize the boundaries of the "paradigm". The paradigm is defined as a series of "universally recognized scientific achievements (in a given field) that for a time provide model problems and solutions to a group of practitioners." (9) The paradigm is in effect a world view, and its boundaries outline for the practitioners both what the universe contains and, equally important, what it does not contain. Further, the paradigm theories explain how this universe operates. (10)

The second reason why the scientists reacted as they did against Velikovsky is that he addressed his message to the general public, in a series of books. As he cut through the boundaries of the paradigm with a double-edged axe, it is little wonder that there was violent reaction in the scientific community.

We often hear of references to what is usually called the "scientific method". Traditionally, the process involves first, acquisition of some data, then formulation of a theory to describe what is going on, and hopefully, to suggest further data to look for. From time to time it becomes necessary to modify, or sometimes abandon, the initial theory in favor of another, and the process continues. It doesn't always work out that way, as we shall see.

An excellent example of the scientific method in action is Newton's Law of Gravitation. This was satisfactory for about two hundred years. Eventually, several phenomena were observed which were not explained satisfactorily by Newton's Law; for example, the advance of Mercury's perihelion. Most of these phenomena were explained early in this century, when Einstein's Theory of Relativity was published. It was presently found that Newton's Law was a special case of Einstein's more general law, and was applicable when the speed of the system was low when compared with the speed of light.

Another interesting example is that of the nature of light. Some observations showed that light consisted of waves; other data suggested that light consisted of discrete particles, or corpuscles. It was not until the Quantum Theory was published in 1900 that this was resolved. It was shown that light consisted of waves of finite duration, or quanta. They were both partly right.

In the foregoing examples, the data or facts themselves are normally not in dispute. If there are not enough data, efforts are made to obtain more. Problems occur when even the basic data are uncer-

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tain, disputed or questioned. A good example of this is the matter of Egyptian chronology, described above.

Almost all of the research going on today is within the scope of the paradigm, and is basically aimed at increasing our knowledge of that part of the "universe" included in it. To investigate phenomena not explained by the paradigm, or in parts of the "universe" not included in it, would tend to threaten the paradigm itself. Those supporting the paradigm tend to look on such activities as anti-science and those working on it as non-scientists. Maintenance of the paradigm requires that students entering the field be taught, in effect, where the boundaries of the paradigm are, and the sort of research activities which are considered to lie within the universe of the paradigm. It has become the custom, in this century, for new discoveries to be communicated to others in the field by means of papers, seminars and professional journals. Publishing of books directed at, or accessible to, the general public is frowned on. In some fields a professional jargon has been developed, used somewhat as a "sacred language", to make even simple concepts incomprehensible to those who do not know the jargon.

From time to time observations are made which the paradigm cannot easily explain. For a time these are, in effect, swept under the rug, and ignored. Eventually, especially when the areas of research advance towards the boundaries of the "universe" of the paradigm, there are so many of these that they cannot be ignored any longer. Eventually the paradigm itself is under attack. There is a blurring of vision in looking at the boundaries of the paradigm, and research formerly regarded as "beyond the pale" is initiated. Also, problems previously regarded as unscientific are reexamined. Eventually the whole process starts over again, with a greatly expanded paradigm.

There are many subjects which are likely to be regarded as "beyond the pale" by the scientific community, if it bothers to look at them at all. These are ancient astronauts, UFOs, extraterrestrials, Atlantis, pyramids, and other such fascinating fields in which there are so many items not accounted for by the paradigm now in vogue, that the paradigm itself needs to be reexamined. There is no rug large enough to cover up everything now coming to light. Thus, one purpose of my studies is to bring together in one place many of the anomalies which have turned up, and present them for the examination of both the scientists and the general public, so that a new paradigm, suited to the New Age we seem to be heading into, can be constructed.

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- (1) Dell Publishing Co., Inc. 1950/1965.
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- (3) Doubleday & Co. 1952.
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- (5) Doubleday & Co. 1960.
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- (8) Doubleday & Co. 1982.
- (9) "The Structure of Scientific Revolutions" by Thomas S. Kuhn, published by Phoenix-University of Chicago Press 1962.
- (10) "The Secret Vaults of Time" by Stephan A. Schwartz, published by Grosset & Dunlap 1978.

On May 6, 1986, Soviet cosmonauts Leonid Kizim and Vladimir Solovov for the first time traveled between two orbiting space stations. The historic journey of 1875 miles was made in a Soyuz T-15 spacecraft, dubbed a "space-taxi" by the Soviets.

## THE PARADIGM OF ASTRONOMY UNDER ATTACK

Two universe-shattering announcements during the same week must have put a crack in the paradigm of astronomy.

On May 4, 1986, the Chicago Tribune reported that astronomers now say that the Milky Way is much smaller than previously believed and the sun and its planets are closer to the center of the galaxy than anyone had thought. The National Science Foundation, which sponsored the work, stated that an international team of scientists used advanced geometry for the first time to measure distances in the galaxy. The new technique has reduced the size of the Milky Way from a generally accepted diameter of 100,000 light years to about 70,000 light years, and measured the sun to be 23,000 light years from the center of the galaxy, rather than the 33,000 light years as previously thought. The astronomers made their observations between 1980 and 1982 by pooling the reception of several radio telescopes located in New Mexico, West Virginia, Massachusetts and California. Correlation of the 100 billion pieces of data obtained has just recently been completed. The report states that the new measurements are expected to have a major impact on many aspects of astronomy.

The Chicago Tribune for May 8, 1986 reported that astronomers have found evidence of a mysterious object in space that could be the most massive in the universe. According to the data, the object apparently contains about 1,000 trillion times the mass of the sun, or 1,000 to 10,000 times the mass of the Milky Way galaxy. The object has not been seen, but its presence was shown by the effects of its gravity. A team of astrophysicists at Princeton University made the find and reported it in the British journal Nature. They expect it will take a year or more, if ever, to get a firm answer as to what the object is.

Announcements such as these should awaken the public to the realization that the scientific community is not infallible; that it does not have all the answers as it claims; and that much of what is taken for granted as fact, is actually theory, yet to be proved or disproved.

The new geometric technique for measuring distances in space should be a boon to space travel, because it proves that the distances in space are not so great as believed, and if this is true, then the task of developing space-craft and energy systems for propelling them will take a different turn. As the universe "shrinks" due to more accurate measurements, manned space travel outside of our Solar System appears to be achievable and can explain why the ancient astronauts were able to travel to Earth in times past.

It is suspected that the next "sacred cow" of astronomy to be butchered will be the "expanding universe theory" - that the universe is constantly expanding into space and that galaxies are becoming farther and farther apart. A prediction from a non-scientist seems to be in order here: that the new measuring techniques will prove that the firmament is fixed and that all matter in the universe revolves around a central point yet to be discovered.

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## MORE ON THE FLYING MACHINES OF ANCIENT INDIA

The Yantra Sarvaswaim of Rishi Bharadwaj is a valuable treatise of 40 chapters dealing with different types of machines. A manuscript copy of this book is preserved in the Baroda Manuscript Library. One of its chapters discusses the construction of aeroplanes. This particular chapter on aeronautics with a commentary by Bodhananda was published in 1959 by Sarvadeshiya Aryaprathinidhi Sabha, Dayanand Bhavan, New Delhi-1. The initial portion of the book lists 25 treatises on the atmosphere and the environment. The construction of aeroplanes is discussed in the 24th section of the treatise (Yantra Sarvaswaim).

Maharishi Bharadwaja recounted the works of the earlier masters who had written on aeronautical topics. He says that a Vimana is a special vehicle which can travel freely by itself on land, in water and through the sky, and they were more sophisticated than present-day aeroplanes. Eight types of Vimanas were constructed:

- Sakthyudgama: to fly by means of energy extracted from the sky.
- Bhoothavaha: the prime mover for which is the action and reaction of the Panchabhootas - the five elements of sky, earth, water, fire and air.
- Dhoomayana: powered by vapor from the burning of fuel.
- Sikhodgama: powered by the burning of juices of trees, such as Sikhi and Sriksarini.
- Amsuvaha: to fly by means of stored solar energy.
- Tharamukha: to fly with energy from ball-like metallic lumps falling out of meteors to Earth.
- Manivaha: powered by the energy from mined metals and certain artificially made chemicals.
- Maruthsakha: energised by the wind.

Under each category of Vimana, five different types of vehicles were constructed.

Bharadwaja stipulates that a qualified aeronaut (Vaimanik) must be the master of 32 principles laid down in the Shastras and understand the secrets of the machines. He must be well versed in maneuvering the vehicle, as well as in the construction of it.

The special materials used in making the Vimanas were described in various treatises, but today we have no means of knowing the specific elements used and their mode of construction.

Gooda Rahasyam describes a method of rendering a Vimana invisible, and the Aparoksha is a scanning with "Rohini Rays" to visually observe approaching Vimanas not yet in sight.

Sarapagamana Rahasyam describes seven types of wind power and solar energy collected and stored in the front portion of the Vimana to enable it to move in a zig-zag fashion.

Parashabidagrahaka Rahasyam describes sound collectors in a Vimana which can intercept the sound waves from another Vimana and make the speech of its occupants audible.

Roopa Karshana Rahasyam describes instruments in a Vimana which can detect the image of things inside another Vimana.

Dik Pradarshana Rahasyam describes an instrument to indicate the direction of approach of another Vimana, such as today's radar.

The Brahmananda Sara gives certain guidelines for establishing communication with the beings on other planets.

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## FAR-OUT PROPULSION SYSTEMS

Part of President Reagan's Strategic Defense Initiative (SDI) involves the development and testing of extremely powerful lasers that could be directed with very great accuracy to distant points in the sky. When I consider the SDI, I ask why this machine has to be used as a weapon - the technology that destroys spaceships may also be used to create them. A large, accurate, laser cannon could be used to direct energy to a spaceship so that the vehicle does not have to carry its own power plant. This concept is not original with me; I read of it in A Step Farther Out, by Dr. Jerry Pournelle. His description of a laser launching system is as follows:

"The basic design of the system comes from A.N. Pirri and R.F. Weiss, of Avco-Everett Research Laboratories. What they propose is an enormous ground-based laser installation consuming about 3000 megawatts. In practice, there would probably be a number of smaller lasers feeding into mirrors, and the mirrors would then concentrate the beam onto one single launching mirror about one meter in diameter. This ground station zaps the spacecraft; the ship itself carries no rocket motor, but instead has a chamber underneath into which the laser beam is directed.

"The spacecraft weighs about a metric ton (2200 pounds) and is accelerated at 30g's for about 30 seconds; that puts it in orbit. While the capsule is in the atmosphere the laser is pulsed at about 250 hertz. Each pulse causes the air in the receiving chamber to expand and be expelled rapidly. The chamber refills and another pulse hits: a laser-powered ramjet."(1)

A very similar idea is presented by Martin Caidin in his book Planetfall.(2) In his scenario, the space shuttle era ends when scientists invent a microwave energy beam that can transmit power to an ascending electromagnetically-propelled passenger spaceship. Although rather vague as to details, Mr. Caidin believes, like Dr. Pournelle, that the heaviest and most complex machines of future space transportation systems will not leave the ground.

In Man and the Planets(3), Duncan Lunan presents a discussion of the problems inherent in the Avco-Everett laser-launched spacecraft. He says that a ground-based laser can only provide power for a velocity vector outward from the Earth's surface. The orbit resulting from such a launch will be in the shape of an elongated ellipse with the perigee only slightly above the Earth's atmosphere. To avoid early re-entry, the projectile must fire an on-board rocket to impart a velocity vector parallel to the Earth's surface - a maneuver called the orbit circularization burn. The rocket and its fuel may take up too much space and decrease the payload.

Another "far-out" possibility discussed by Mr. Lunan is the idea that future space stations may possess some mechanism whereby payloads launched from Earth may be physically hooked by cables or "grabbed" by electromagnets and accelerated into the right rendezvous course.

I believe the illustration in Zecharia Sitchin's The 12th Planet(4) of a wall decoration in an Egyptian tomb (See Ancient Skies 4:3) could represent a cone-shaped payload module of a laser-powered spacecraft, elevated above a tapering propulsion module undergoing a maintenance inspection. The 132 circles on each side of the vehicle could represent the clusters of circular mirrors to reflect the pulses of laser light into the spacecraft's propulsion chamber. Gregory Morris, 6221 Leahbun Lane, Knoxville, Tennessee 37919 USA.

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