



ANCIENT SKIES

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FLYING MACHINES IN ANCIENT INDIA

BY DR. DILEEP KUMAR KANJILAL*

Since my college days the various descriptions of the flying machines and of the aerial journeys found in the Sanskrit literary texts aroused in me a deep sense of curiosity about their relevance, propriety and true import. That inquisitiveness would have been nipped in the bud had not the Ancient Astronaut Society invited me to deliver a lecture on flying machines in Sanskrit literature at the Society's World Conferences in Munich, West Germany in 1979 and in Vienna, Austria in 1982.

The search for the materials required for the lectures opened up a new vista before me and I found quite a lot of reference in the Vedic texts and in classical Sanskrit literature on the use and of the modalities of the construction of the flying machines.

Until now, except for the Vaimanika Sastra, the following works and authorities are known to have dealt with the topic of Vimana (airplane) in a scientific perspective: the Samarangana Sutradhara and the Yuktikalpataru of Bhoja (12th Century AD) and Mayamatam, attributed to the architect Maya, celebrated in the Mahabharata. In addition to these works, about 150 verses of the Rg.Veda, Yajurveda and the Atharvaveda, a lot of literary passages belonging to the Ramayana (about 5th Century BC), the Mahabharata (about 6th Century BC to 2nd Century AD), the Puranas, the Bhagavata (about 9th Century AD), the Raghuvamsam and some references of the drama Abhijnanasakuntalam of Kalidasa (about 2nd Century BC), the Jatakas (about 3rd Century BC), the Avadana Literature of the 1st to 3rd Century AD and of the Kathasaritsagara (about 10th Century AD), and a number of other literary works contain either references to graphic aerial flight or to the mechanism of the aerial vehicles used in old ages in India.

*This article is based upon the author's book, Vimana in Ancient India, published in 1985. The scholarly work is available in English from the publisher, Sanskrit Pustak Bhandar, 38, Bidhan Sarani, Calcutta 700006, INDIA.

Dr. Kanjilal has an MA degree from the Sanskrit College in Calcutta, a PhD from Calcutta University and a B.Litt. from Oxford University. A world renowned expert in Sanskrit, Dr. Kanjilal has published more than 50 articles in different research journals of India. Having served as a lecturer and professor in several colleges and universities, Dr. Kanjilal is now a Professor in the West Bengal Senior Educational Service. He is a member of the Asiatic Society, Calcutta, the Bhandarkar Oriental Research Institute, Poona, and the K.S.R. Institute, Madras. His address is "Nishi-Saran", Railpukur Rd., Deshbandhunagar, Calcutta 59, INDIA.

While literary references are to be gleaned from the vast mass of Vedic and Classical Sanskrit literature, the text of the science on aeronautics has become available in an almost complete form firstly from the Dayananda Trust, New Delhi in 1968, followed by a second edition in 1977, and then from another edition published by the International Academy of Sanskrit Research, Mysore in 1973. A short brochure of 30 pages on the Vaimanika Sastra was published by Acharya Sri Caranathirtha Maharaja from the Sri Bhuvanewari Ayurveda Pith, Gondal, Saurashtra in 1952 on the basis of some manuscripts known to them. The Mysore Edition contains a running English translation of the Sanskrit text with sketches of the Flying Machines, drawn on the basis of the description, but it contains no critical apparatus. The Hindi Edition, on the other hand, contains a fair introduction which states that a paper transcript of the original Ms. of the Vai. Sastra was found in 1918 in the Baroda Royal Sanskrit Library. The photo-transcript preserved at the Poona College was dated August 19, 1919. Some portions of this manuscript were published in 1943 under the title "Vimana Sastra."

Mr. B. G. Talpule, a devotee at the Arya Samaja and himself a teacher, wrote a book in Marathi entitled "Vimana Kalecha Sodha" in 1907. In this book, Mr. Talpule described the modalities of the construction of a flying machine which he said to have had constructed in 1895 on the basis of the Vai. Sastra and had put it on trial in Bombay Chowpatti. So it appears that the Vai. Sastra was known in 1895. This happens to be the first printed text on Flying Machines in India based on the Vedas before any manuscript on the topic could be discovered.

Swami Dayananda Saraswati, in his comprehensive treatise on Rg.Veda dated 1875, admitted as a fact the existence of aerial flying machines in ancient India and interpreted the verses of the Veda in that light. It is also suggested that he had knowledge of some manuscripts on aerial flying machines when he wrote the commentary in 1875 AD, but these are no longer available. Chapter XXXI of the Samarangana Sutradhara contains details of the construction of an aerial flying machine and it has been found that one manuscript of this treatise is as old as 1610 AD. The earliest manuscript tradition of the flying machines thus ranges between the 12th and 17th Century AD in India.

We are thus in possession of some manuscript material and literary references which suggest with some measure of certainty that before the first recorded human flight in the West in 1783 AD by Rozier and his friend Marquis d'Arlandes, the principles of both heavier-than-air and lighter-than-air flights were known in India.

The first reference to vehicles capable of going through the air with living beings on board, either mortal or Gods, is to be found in the Rg. Veda in

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the hymns addressed to the twin Asvinas, the Rbhus and other deities. The flying aerial vehicles have firstly been designated Ratha (vehicle or carriage) in the Rg. Veda. The idea of vehicles closely following the tract of the birds in the sky seems to have been expressed in the Rg. Veda. The word originally used to convey the idea of a aerial vehicle was Ratha. The Rbhus built an aerial chariot for the use of the twin Asvinas, the physicians among the Gods. It was very comfortable and could move everywhere including the heaven and sky.

The vehicle possessed speed faster than the mind. It was triangular, large, three-tiered uneven and was piloted by at least three persons. It had three wheels which were probably withdrawn during aerial flight. In one verse the chariot is said to have had three columns. It was generally made of any one of three kinds of metals, gold, silver or iron, but the metal which usually went into its make-up according to the vedic texts was gold and looked beautiful. Long nails or rivets were attached to it. The chariot contained honey or liquid and was probably provided with all sorts of amenities and provisions which could be served to the passengers. Possessing speed faster than the mind, it moved like a bird in the sky soaring towards the Sun and the Moon and used to come down to the earth with great sound.

The words "madhu" and "anna" which occur in the Vedic text require special attention in this context. "Madhu" indicating "honey" in classical Sanskrit stands for Soma, that is, a liquid substance. "Anna" normally refers to boiled rice, but here stands for fermented juice made from rice and stored in tanks. According to the information supplied by the Nighantu, two varieties of liquid were stored. It is highly probable that some sort of mixed liquid like alcohol made out of Soma juice or honey or fermented liquid made from rice was preserved in tanks and used as fuel.

It has been explicitly stated that this vehicle moved in the sky without any steed, for which its builders, the Rbhus, earned celebrity. Many people assembled on the ground to see the chariot come down from the sky. Apart from the three pilots, it could accommodate about 7 or 8 persons and was probably amphibious, because it could come down safely at sea and then return to the shore.

The flying vehicle as it moved on the earth left marks of its wheels. It had scheduled flights, three at day and three at night. There is a graphic description of the flight of the aerial vehicle belonging to the Maruts. The buildings trembled, trees and small plants were uprooted by the violent wind, the caves in the hills were resounded and the sky seemed to be torn assunder, or churned, owing to the great speed and the loud noise of the vehicle.

Vimana as expressive of aerial vehicles was seen firstly in the Yaj. Veda. Prior to that, the word Vimana had been used in various senses related to the sky, as aerial fire, the measurer of the day, and the maker of the sky. In all these uses the word had been associated with the expanse of the sky and its measurement.

But in the Yaj. Veda at 17.59, followed by later texts, Vimana seems to indicate a flying vehicle. As in the whole classical and in the Pauranic literature, Vimana has been the generic name for aerial vehicles, it is reasonable to accept the Vedic word as the earliest designation of aerial vehicle.

The Puspaka aerial vehicle resembled a tapering hill moving as fast as mind, its body decorated with gold, seats made of precious stones and gems and it was full of secret chambers. Externally the vehicle looked bright as silver and had beautiful and small windows fixed with pearls. The plane had yellowish banner and staffs. It was marked with swans and lotuses. The inside was full of beautiful rooms. The lower portions, or tiers, were deco-

rated with crystals and the whole internal body of the vehicle was bestrewn with valuable coverings like carpets and was full of all sorts of wealth. Its sight was astonishing and it was spacious. Aside from the small windows it was full of small bells which made pleasant sound. The aerial vehicle could accommodate about 12 persons. It started from Lanka in the morning and reached Ayodhya sometime in the afternoon with stop-over at two places, Kiskindhya and Vasisthasrama. Thus it covered a distance of about 1800 miles in 9 hours at an approximate speed of 200 mph.

The Mahabharata describes Arjuna's journey to the heaven with Matali, where Arjuna crossed the starry regions of the firmament and saw hundreds of aerial vehicles, some in motion, some grounded, and some about to take off.

In the Sabha-parvan, important references can be found about the celestial beings. It is stated that in olden times Gods used to come to earth assuming human forms to see the acts of humans in person and they used to roam about on earth freely. In this context, various assemblies (satellite cities) were described, some of which could move in the sky like present-day satellites. Vimana, or aerial vehicles, were found to be present in each of these assemblies of Indra, Brahma, Rudra, Yama, Kuvera and Varuna. These flying assemblies, or cities, referred to as Sabha, were hovering in the sky. They were very large, shining like silver, contained food, drink and water and all the amenities of life as well as arms and ammunition for protection.

The Sabhaparvan also describes the Sabha built by Maya, which could be taken high up into the sky. What is significant in this description is that these assemblies were moving in stationary orbit around the earth and their doorways were wide enough to permit the entry of small flying-crafts. The descriptions thus approximate the present-day space-vehicles which are likely to give way to revolving space-cities as contemplated by the concerned technologists.

References to flying vehicles as Vimana occur in the Mahabharata in about 41 places, and we come across no less than 35 references to missiles, armaments, sophisticated war-machines and mechanical contrivances, as well as to Vimanas.

In the Jataka stories there are references in profusion to some aerial vehicle by the term Vimana of which the following only may be cited:

- "the great deity alighted from the aerial car;
- "the divine aerial vehicle piloted by Matali arrived from Heaven;
- "When the Suparna king went for playing at dice, his wife Susroni got down from the aerial vehicle;
- "Sakra (Indra) arrived in front of the aerial vehicle of the deity."

In the Lomaka Jataka there are references to flying vehicles made of four different types of metal and capable of descending on the seas. This is in time with the tradition of the Vedic literature in which both amphibian and aerial machines made of iron, silver, copper and gold have been referred to.

Literary traditions recording the use of aerial vehicles are to be found in the 10th Century collection of tales known as Kathasaritsagara, written by Somadeva. This work records as many as ten instances of which the tale of Somaprabha happens to be the most important testimony regarding the use of flying machines. Four types of mechanical contrivances capable of moving on earth, on water, in extreme heat or fire, and in the air have been referred to. The most interesting of all the tales is the exploit of the two brothers Pranadhara and Rajyadhara, who learned the art of preparing automatic mechanical devices out of the wood from the tradition left by Maya. This vehicle could travel about

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2000 miles at one stride and with this vehicle the two brothers left the country for a distant land. The story also refers to mechanical human forms resembling robots. In the same story the movement of King Naravahanadutta in an aerial vehicle is referred to. This vehicle could carry about 1000 persons. From the stories and the legends the fact comes out that the tradition regarding the use of flying machines was alive in some form or other among the people of ancient India before the 9th Century AD.

Literary references in Sanskrit are astonishingly profuse to sustain and support the knowledge of the ancient Indians in aerial-flying. But the technicalities of the process require a thorough knowledge of Meteorology, Cosmogony, Mathematics, Aerodynamics, Chemistry, Geography and Aeronautics. Literary evidences from the age of the Vedas seem to suggest that the Hindus were acquainted with various types of metals and chemicals in every day and scientific uses. Mercury, copper, bronze, gold, silver, iron, zinc, lead, salt, brass, pottash, nickel; all were in wide use. Excavations at Taxilla have brought to light abundant specimens of silver and gold jewelry in the first millennium BC. Iron was manufactured in India before the 3rd Century BC, which can be understood from an examination of the iron clamps at Bodhi Gaya Temple. The rustless iron pillar of Chandraketu in the Kutub Minar about the 4th Century AD presents a marvellous metallurgical skill. Evidence of the use of a magnificent type of steel before the 5th Century AD has been furnished by Kresias who was at the Court of Persia. Varahamihira has referred to a process of hardening steel. The Kubjika Tantra of the 6th Century AD discusses the efficacy of mercury. The transmutation of copper into gold with the aid of mercury has been mentioned in this work. The Dasakumaracarita in the 6th Century AD refers to the preparation of a mass of coagulated, or fixed, mercury. It refers to a chemical powder capable of producing deep sleep, a chemically prepared wick to produce light without fire and a powder which acts as an anesthetic which paralyzes sensory and controlling nerves.

The Tantras speak of the preservation of the human body by using mercury. Many other treatises deal with the use of mercury, its purification, killing and destroying the fluidity, the powdering, polishing and anodizing of mercury. Tibetan texts also give details of mercury and other chemicals and metals.

The Vai. Sastra, known to the elite literateurs of India sometime before the 10th Century AD, mentions 31 component parts of aerial flying machines, some of which are yet unknown in our modern technology. Consider: a telescope-like instrument for viewing actions in various parts of the world; a mirror for attracting energy; devices for contracting and expanding the body of the airplane; a mirror for determining distortions or damage to the aircraft; a steering-device placed at the crest of the machine; a device for suppressing or conserving energy; a mine detector; a device to create artificial darkness; a mechanism to measure wind pressure and to induct wind into the body of the plane; an apparatus with 12 types of electricity (still unknown to modern science); an energy generator; a screening device; a compass; a solar power attractor; an exhaust device; a braking system; and a heating device. The Vai. Sastra, therefore, furnishes useful data regarding the construction and use of various types of flying machines in ancient India.

It may be added here in passing that there is no mention of parachutes in the Sanskrit literature, but curiously enough the Saddantajataka refers to an umbrella made of skin which was used for descent from high above, by encompassing wind within the leather cover. A man was said to have had descended from the top of a hill with this artificial cover.

Analysis of the overall characteristic features of the Vedic deities seem to endorse the view that Gods were mortal beings with bodies who came to earth long ago from the distant and remote corners of the sky above. Viewed from this angle the use of aerial flying machines by the Gods gain all the more probability.

One may reasonably ask how all the valuable scientific knowledge of the ancient Indians passed into oblivion and why concrete archaeological relics of flying machines have not been found. Only a few persons possessed the scientific knowledge and they were of the elite, not among the common people. The knowledge was passed on to only a few people, and with the passage of time and changes due to various catastrophies, the machines were destroyed and the secrets of their make-up and of flying were lost.

A highly developed civilization existed with the existence of great universities and seats of learning, but beginning as early as the 2nd Century AD, the depredations of foreign hordes continued for centuries, and the universities, libraries, temples and priceless treasures of the Indian heritage had to stand the fire and fury of the marauders. As a result, the whole of Northern India was reduced to shambles until about the 12th Century AD when some glimpse of the old heritage was revived in a compilation of the Sanskrit texts.

But the destruction caused by foreign invaders does not account for all the loss of the relics of India's cultural heritage. We have a convincing record of the scientific knowledge of the Indians from the age of the Vedas, but several devastating wars took place within the country to further decimate the scientific knowledge.

The Mahabharata speaks of colossal destruction caused by powerful weapons. The enormity of the situation is comparable only to the present day thermo-nuclear war. It can be assumed with cogent reasons that the destruction was so severe that it took the remnants a long time to eke out a new and organized livelihood, and during the dark period the knowledge and the use of flying machines was practically lost.

While no significant archeological evidence of flying machines has yet been discovered in India, Egypt has preserved the oldest relic of flying machines in a tomb near Sakkara. It is now in the National Museum in Cairo, the catalog number being 6347. It has been accepted as a model aircraft made of wood, with wings and aerodynamically shaped wing-tips. The age of the model is estimated to be earlier than the 3rd Century BC.

Flying machines were thus a reality in the Vedic and post-Vedic ages in India and in other parts of the world. It is time that the history of human civilization be retold to extend due recognition to this forgotten aspect of world technology. Modern space technology and aviation may have gainful results if the resources of the Sanskrit texts on flying machines and the use of liquid fuel are explored scientifically.

ERICH VON DANIKEN's latest book in German, Habe ich mich geirrt? (Was I Wrong?), published by C. Bertelsmann, has been on the top ten best-seller list in Germany for the past five months. His two latest books, Was I Wrong? and The Day the Gods Arrived, have yet to be translated into English!

The Day the Gods Arrived has been published in Spanish and is on the best-seller list in Mexico, where the author recently spent one week in promoting the book.

Erich von Daniken continues to set a fast pace in promoting the ancient astronaut theory. In March he will present lectures and discussions during a tour on board the liner MS EUROPA. In April he will lead an expedition to Egypt with 44 members of the Ancient Astronaut Society from Europe, and in May he will have a promotion tour to Holland and Norway.

STILL MORE ON THE RIDDLE OF THE STONES

This past summer, I had the good fortune to meet and travel with a professional adventurer and explorer, Richard Ray, who has done and continues to do a great deal in the way of studying ancient civilizations. Mr. Ray has spent many years of searching and working at archaeological sites in North and Central America, including Teotihuacan near Mexico City, and the Maya ruins in the Yucatan. He has established a center in Costa Rica, Central America, for people to visit one of the most unique and virtually unexplored ancient sites.

In the area around his center, there are many stone balls, ranging in size from a few inches to six feet or more in diameter. Most are perfectly round, as though they were shaped by some giant grinding machine! Hundreds of these balls have been found, and many have been moved to various museums, government buildings, schools and even to the front lawns of the more affluent people in Costa Rica. Hundreds more still lay in the jungle, much of which is yet unexplored.

Mr. Ray has discovered several stone balls at remote sites that have never been touched by archaeologists. He has talked with many of the leading scientists as to the origin of these balls. Thus far, none have been willing to put forth any type of real theory as to their origin, how they were made, where the material came from, or their purpose. Even the National Geographic Society classifies them as a "mystery." But as all too often happens in scientific circles, nobody ever asks the natives these questions. We have begun to realize that many of the "folklore" stories may offer a real basis for explanations as to many so-called "mysteries."

So it is with the stone balls of Costa Rica. Mr. Ray has asked the above questions of two groups of natives, the lowland and the mountain. As a result, he received two different explanations, but with a common basis and evidence to support both theories.

As to who made the balls, the answer from both was simply "the Ancient Ones." How were they made? Both groups stated that the ancient people had a formula for "melting" stone, yet it would be cold. Where the native stories differ is that one group says that the balls were "cast" in a mold. To support this, at the National Museum you can see one of the balls that is broken in half. Inside there are round, river-type pebbles exposed out of what appears to be a concrete material, yet the external appearance on many of the balls resembles granite!

The other explanation is that the balls were formed by repeated "dipping" a round stone into this "melted" stone material, thus growing in diameter with each dip, much as in the old time method of candle making. To support this theory, several balls have been located that have weathered to a point where the stone is "flaking" off the outside in layers! Perhaps they are both correct.

As to the purpose, the natives do not agree. One group says the balls marked the cultural centers; the larger the ball, the more important the village. The other states that the balls marked cemeteries.

For more information on this fascinating site you may write to Richard Ray, Box 558, Manvel, TX 77587. Don Treavor, Dowers Research Center, Box 2000, Room 333, Alvin, Texas 77511 USA.

PERIODICALLY, SUGGESTIONS APPEAR IN ANCIENT SKIES that the ancient astronaut question could usefully be pursued by a concentrated effort on the part of scientists acting as a group. The earliest such proposal of which I am aware was that of Erich von Daniken in Chariots of the Gods? when he advocated a concerted effort by scientists along the lines of the International Geophysical Year (IGY) that heralded the Space Age.

Such suggestions appear attractive to proponents of any field of study, but there are usually considerable difficulties in the way of their realization. The IGY was a success because the related fields of science and engineering had reached a point where scientific studies of the atmosphere and the space environment had the potential for attracting significant financial support - mostly from Governments. The vast majority of professional scientists are just like ordinary folk in one respect - they like getting paid. Should the day come when money can be allotted to ancient astronaut studies, an impressive number of scientists will consider that such studies merit their attention.

In the meantime, the ancient astronaut field will continue to be served by individual investigations and by the exchange of ideas through the Ancient Astronaut Society, its publications and Conferences. One extension of the Society's activities that might be considered is the establishment of one or more Scientific Investigative Committees on a trial basis to see whether combinations of talent could stimulate activity in particular areas of inquiry. Dr. Stuart W. Greenwood, 5004 Laguna Rd., College Park, MD 20740 USA.

COMING EVENTS:

1. Plans are underway for the next World Conference of the Ancient Astronaut Society to be held in Novi Vinodolski, Yugoslavia, a resort village on the Adriatic Sea. The Conference site is the Hotel Lisanj, a luxurious resort hotel directly at the sea shore. Conference dates are:

September 9, 1987 - Arrival

September 10, 11 and 12, 1987 - Conference

September 13, 1987 - Departure

Please Note: The Conference will be in 1987.

2. Also scheduled for 1987 - Around the World Member Expedition. The expedition will depart Chicago about August 15, 1987 for the West Coast and then on to the Orient. First, Hong Kong and then China and Tibet. If possible we will visit Angkor Wat in Kampuchea (Cambodia), and India. We will arrive in Yugoslavia on September 9, 1987 to attend the next World Conference and then continue westward to Chicago on September 14, 1987.

Details on these two events will be announced when available.

MANKIND: CITIZEN OF THE GALAXY

By KENNETH C. McCULLOCH

The author of this privately published new book has performed the herculean task of reading and listing some 1,000 books, articles and periodicals in the fields of ancient astronauts, ancient mysteries, UFOs, space travel, the Moon, Atlantis, Pyramids and many others. Detailing titles, dates, authors and publishers, the book is an excellent reference work. It could be considered as a giant book review of the principal works in the fields.

Mr. McCulloch, a Canadian, 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.

The book is an oversize paperback (8 1/2 x 11) with some 300 pages and includes many photographs of archaeological sites in South America and Mexico where the author has visited. The book is available from Rings of Saturn Publishing, P.O. Box 3440, The Pas, Manitoba, CANADA R9A 1S2.

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