

The Age Old Dream of Skylab
*The long road from Mankind's first look at the Heavens
to America's first Manned Space Station and Beyond*

This work is an historic look at the long road taken by humanity from our earliest days when fires were lit in front of caves to stave off wild animals to the early myths of the ancients, the theories of the Greeks and others, the discoveries of the Middle Ages and the Renaissance to the age of flight and mankind's continuing steps into the exploration of space and beyond.

With the launch of Skylab mankind progressed from short term exploration and wonder to pure research beginning a new age of discovery.

The Age Old Dream of Skylab is 443 pages and 293,800 words and includes illustrations or photos for all sections. There are also several informative charts which detail many of mankind's discoveries.

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Chapter One Man Must Dream, Explore and Discover

“This is exploration at its greatest.”
Apollo 15 Astronaut David Scott

On May 14, 1973 the United States of America placed into orbit their first operational space station named Skylab as part of the Apollo Applications Program, an off-shoot of their manned lunar landing program. The long held dream of exploring space and placing into space an Earth orbiting laboratory to be manned by crews launched by rockets had finally been achieved. Using equipment and methods developed to land an American on the Moon “before this decade is out” the National Aeronautics and Space Administration, better known world-wide as NASA, had planned a wide range of manned and unmanned exploration programs. These manned efforts initially included a large Earth orbital station, a Space Shuttle, a lunar base, as well as large orbital vehicles similar in design to Skylab to be sent on missions to the Moon, Venus and Mars as well as a manned landing on the Red Planet.

Turning one of those dreams, an Earth orbiting laboratory, into reality had been a very long time coming and it was almost a complete failure...

Ad Inexplorata
(Toward the Unknown)

In 1768 as adventurous souls were attempting to discover even more truth about the solar system we live in the HM Bark *Endeavour**, commanded by Captain James Cook (1728-1779) sailed from southern England on a scientific voyage of discovery to Tahiti. The voyage had been undertaken to observe the transit of the planet Venus, an early target of men’s unmanned efforts in space, across the face of the Sun. (The planet Venus passing directly between the Earth and our Sun.) He then planned to continue on across the south Pacific to discover unknown southern lands; *Terra Australis Incognita*. He would become the first European to make contact with the eastern coastline of Australia as well as the Hawaiian Islands. On a later voyage to Hawaii he would die in a fight to the death with natives. However on this voyage of discovery Cook and his crew would sail round the Cape of Good Hope on March 13, 1771 and return to England on July 12, 1771. They had been at sea for nearly three years, which is about the same length of time a manned mission to land on Mars and return to Earth is expected to last. So as some dreamers set out on great voyages to explore our planet others were preparing themselves to explore the vast reaches of our solar system and eventually the vast reaches of outer space.

On July 26, 1971, the *Apollo 15* crew launched towards the *Terra Incognita* of the Moon with David Scott (b. 1932), James Irwin (1930-1991) and Al Worden (b. 1932) on board. Their command module (CM) was named *Endeavour* in honor of the scientific expedition commanded by Cook which began some 203 years earlier. As Scott made his first steps on the Moon’s surface he would report back to controllers on Earth that “Man must explore, and this is exploration at its greatest.” Nevertheless, even as Scott and Irwin were walking on the Moon the United States was cutting back on plans to explore space in both manned and unmanned programs.

Many space stations planned at the time would be cut back to two and only one of those would be launched into Earth orbit. Nevertheless, even at a time of dwindling budgets the future would in fact hold one more namesake of Captain Cook's ship. After the tragic loss of Space Shuttle *Challenger* in 1986 NASA constructed a replacement Shuttle which would proudly bear the name *Endeavour* and continue some of the work left undone by *Challenger* and her final crew.

*Originally named the HMS *Earl of Pembroke*. The replacement Shuttle for the destroyed *Challenger* would carry this name. The Shuttle *Endeavor* is presently on display in Los Angeles, California and as of this writing soon to be mated to an external tank and a set of solid rocket boosters.

Manned Flight at Last

Dr. Kraft Ehrliche (1917-1984), who worked on the German army's V-2 program during World War II would write, "The solar system and as much of the Universe as man can reach are man's rightful field of activity." We have been reaching for the stars for a long time. But before space could be reached, mankind needed to test his new science in the atmosphere of Earth. Man needed to learn how to fly.

LEONARDO DE VINCI

"A bird is an instrument working according to mathematical law."

Leonardo de Vinci, 1500

Between the years 1486 and 1514 the great artist and scientist Leonardo da Vinci (1452-1519) designed and sketched out several machines he felt could possibly give "wings" to mankind. He drew a good many "flying devices" including a small aircraft he called an "ornihopter." His sketches also included a parachute (tent roof), a glider and even a helicopter. His screw-like helicopter would have been some 13 feet in diameter, made of reeds and covered with taffeta. There is no verifiable surviving evidence that any of his devices were actually built and tested in his day, at least none have been found to have survived to our times, but one never knows. However, stories have come down to us that he actually did construct some models of his designs, perhaps large enough to carry a man.

Through the mists of time an unsubstantiated report (no photos of course and no confirming eyewitnesses) speaks of Leonardo himself attempting flight in one of his devices. Did he succeed? Is there a reliable report tucked away in some long forgotten vault or other artifact tucked away in an underground chamber (perhaps a Vatican vault) yet to be rediscovered to an amazed world? We may never know, but since Mr. de Vinci was a man of superior curiosity and intelligence could he have spent a good deal of his life designing such works and perhaps build such a device and never test it? From Leonardo we read, "The noblest pleasure is the joy of understanding." Did he truly understand flight on a personal level? Perhaps it was only "*Vera Historia*".

LAGARI HASAN CELEBI

There is of course the legendary flight, or so we are told by a traveler named Evliya Celebi (1611-1682) from his *A Book of Travels*, of one Lagari Hasan Celebi to consider who is said to have flown to honor the birth of Sultan of the Ottoman Empire Murad IV's (1612-1640) daughter, Kaya Sultan in 1633. Celebi is said to have taken off from a place just below the viewing area of Topkapi Palace with his

Sultan in attendance. Before the launch of his gunpowder fueled 'rocket' (150-300 lbs of gunpowder) he was reported to have proclaimed that he was about to "speak with Jesus in the heavens."

The rocket flight is recalled (at least we are told) to have gone off rather well flying for 300 yards in 30 seconds with Lagari from the Sarayburna docks slowly and safely descending by a winged glider (possibly some type of parachute set-up) into the Bosphorus, where as he was gratefully rewarded by the Sultan with the rank of sipahi, which reportedly came with a good deal of gold or silver and a position in the Army. Did he really fly and even survive after his cannon like launch? We may never have the answer, but the possibility is a fascinating one. There were of course no photos of this legendary flight of "Sipahi" Celebi, but there are some very interesting drawings of the "flight" as well as a modern full-scale model of his "craft". Perhaps someday we shall discover some old records which fully detail the legendary flight and, dare we hope – some hardware!

In 1717 after many years of work the problem of developing an accurate device to measure temperature was solved by a Dutch instrument maker named Daniel Gabriel Fahrenheit (1686-1736) who was finally able to bore an even hole in a glass tube which was the solution. After this work was done Fahrenheit then went about developing his temperature scale which for reasons lost to history ended up with the point of boiling water at 212 degrees and freezing at 32! Needless to say, his numeration left many wanting a better scale. The new scale was developed by Anders Celsius (1701-1744) in 1742. Celsius, an astronomer in Sweden put his scale at zero to 100. However, his original scale was freezing at 100 and boiling at zero! That was soon reversed with zero at freezing of water and people could now move on to other problems to solve. As for Mr. Celsius not satisfied to stand on his laurels he went on to become the first to link the Earth's magnetic field with the northern lights or *aurora borealis*. It would not be long before one of these new instruments were taken aloft in a balloon for some of the first measurements of our atmosphere.

D'ARLANDES & DE ROZIER

Balloons were the first manmade craft known to be flown by man. Properly 'recorded' flight would begin with a hot air balloon. On November 21, 1783 Frenchmen Francois Laurent d'Arlandes (1742-1809) and Jean-Francois Pilatre de Rozier (1754-1785) became the first men to 'fly' in a balloon as it rose over Paris for a 25-minute flight, which covered five and a half miles. The balloon lifted off at around 2 p.m. Launched from the garden of the Chateau de la Muette in the Bois de Boulogne, this first flight was viewed by an invited crowd which included Louis XVI of France (1754-1793) and Benjamin Franklin (1706-1790). When Franklin was asked what possible good could come from such a devise he looked up at the new flying machine and replied, "Of what good is a newborn baby?" Before there was a better understanding of how our atmosphere thins with altitude it is noted that several individuals died due to a lack of oxygen and bitter cold in their attempts to gain great altitude. At the time it was even thought that a balloon flight to the Moon could very well be possible.

A few years later one of the first men to fly, de Rozier, would become one of the first to die in a flying accident when his 37-foot hydrogen filled balloon collapsed and crashed. This was to be the first French attempt to fly across the English Channel. It was June 15, 1785, as de Rozier and Pierre Romain took to the air. They had made good progress at the start until a change in the direction of the wind forced the balloon back over France. From an estimated height of 1,500 feet the balloon suddenly collapsed and fell to the ground near Wimereux in the Pas-de-Calais. Needless to say, both men were killed instantly. Flight, it would seem, whether in the atmosphere or space, would always demand lives be sacrificed as each new step pushed mankind farther and faster into the unknown and well beyond as man continued to search for his true place in the heavens above.

It would not be long before balloons would be used for war. In 1794, during the Battle of Fleurus, the French Aerostatic Corps would be used for reconnaissance.

BIOT & GAY-LUSSAC

Scientific balloonists Joseph Louis Gay-Lussac (1778-1850) and Jean-Baliste Biot (1774-1862) made their record breaking altitude flight beginning from the *Conservatoire des Arts et Metiers* in Paris, France on August 24, 1804. The scientists made barometric and electromagnetic measurements to an altitude of 13,000 feet before starting their decent. Gay-Lussac would make a later solo-flight to an impressive 23,000 feet. This record ascent would not be surpassed for 50 years and it nearly cost him his life. As he collected air samples, some as high as 20,000 feet and measurements of temperature, pressure and electromagnetic measurements, he began to experience shortness of breath, quickening pulse and then unconsciousness. He had experienced oxygen deprivation. He survived, but more than one balloonist would succumb to oxygen deprivation and intense cold as explorers tested the limits of the atmosphere, their machines and themselves. Interestingly, despite increasing data at the time that the atmosphere did not reach all the way to the Moon some still believed that a balloon flight going all the way to the Moon in the 'ether' could be accomplished.

It was during this same year that Giuseppe Piazzi, well known for his discovery of the first asteroid noticed the rapid movement of the double star 61 Cygni in the constellation Cygnus or the Swan. It would soon become better known as "Piazzi's Flying Star." Stars in the heavens were now known to be very much on the move.

Even as balloons were making their way higher into the atmosphere rockets were beginning to find their way, but for a while only for displays and military uses. British scientist William Congreve (1772-1828) developed an explosive warhead attached to a gunpowder-powered rocket. On October 8, 1806 the British were once again warring with the French this time at Boulogne and for the first time in Europe military rockets were used during a battle. Some 200 Congreve rockets fired by the British would be used during the war. Congreve rockets would become known by Americans by their use during the British 1812 bombardment of Fort McHenry as the 'rocket's red glare.' In 1813 once again Congreve rockets were used by the British against the French at Danzig. The rocket barrage destroyed Napoleon's (1769-1821) badly needed supplies.

Decades later when Major General Winfield Scott "Old Fuss and Feathers" (1786-1866) moved his forces into Mexico during the Mexican/American War in 1846 he brought along a brigade of rocketeers. The use of rockets was starting to become a feature of military operations not just a toy to fire on the 4th of July.

A VOYAGE TO THE MOON: Science fiction was starting to blend voyages to the solar system with the new world of machines and mechanical devices. The public would no longer be satisfied with voyages of the mind. Readers now expected to be taken to the heavens on modern craft designed by the hand of man and flown into the 'ether' for a whole new exploration in ways that some day may someday be possible. *A Voyage to the Moon with some Account of the Manners and Customs, Science and Philosophy of the Peoples of Morosofia and other Lunarians*, saw publication in 1827. Written by George Tucker (1775-1861) under the name Joseph Atterley went well into describing his vehicle.

The machine in which we proposed to embark, was a copper vessel, that could have been an exact cube of six feet, if corners and edges had not been rounded off. It had an opening large enough to receive our bodies, which was closed by double sliding panels, with quilted cloth between them.

Tucker undertook to explain that a new metal he called ‘lunarium’ was used to “overcome the weight of the machine, as well as its contents, and take us to the Moon.” This of course had to be a form of anti-gravity metal, as gravity by this time was well on the minds of the average science fiction reader. This lunarium metal had at least a bit more ‘science’ around its fictional edges than flying red horses and carriages or even a hard working mind ‘thinking’ their way into space. It is also noted that Mr. Tucker’s craft was not used to go on a lunar vacation – this craft was filled with the latest scientific devices to study not only the Moon but the stars well above the disruptive effects of the Earth’s atmosphere. Science fiction was beginning to express itself as a tool for actual exploration.

A CIVILIZATION ON THE MOON: With more and more public interest in exploration and things off-world it was time for the newspapers to get in on a little science fiction and a bit of financial reward. Beginning on August 25, 1835 *The Sun*, a newspaper out of New York City, decided to have a little fun with their readers. The newspaper ran the story for six days about life and indeed a whole civilization being discovered on the Moon. What became known as The Great Moon Hoax had begun, remembering of course that this ‘news’ report came only eight short years after the Lunarian voyage of Tucker.

The story was reported to have originated from *The Edinburgh Journal of Science* (by then quite defunct) under the heading: “GREAT ASTRONOMICAL DISCOVERIES LATELY MADE BY SIR JOHN HERSCHEL...” (1792-1871). Many were soon reading about Moon-men with wings, unicorns, bison, goats and a tail-less beaver. It was to the bat-men (*Vespertilio-homo*) to build the great temples which had been discovered by the use of “an immense telescope of an entirely new principle”, or so went the story. There was of course a small catch to this ‘discovery’, that being the unforeseen destruction of the telescope when the telescope accidentally focused the Sun on the observatory and set it on fire. Without the ‘new principle’ used to build the telescope now completely destroyed no-one could verify the results!

Certainly newspaper sales increased, at least for a while. Re-prints of the story ran to some 60,000 copies as a small pamphlet in America before it saw print in Europe. Many people who read the tall tale took it as fact. As for the hoax – it would take a few weeks for the story to be shown to have been just a bit of science fiction, but even then the now successful paper did not publish a retraction. Some were still not ready to believe it had all been a tall tale. As for the 19th century public believing such stories, one should not be too comfortable laughing about all of this from the comfort of our more “enlightened modern age”. It has not been that long since we heard a tale of Martians invading Earth in 1938 – when more than a few enlightened citizens headed for the hills. We may in fact perhaps take a bit of pride with us today about the 19th century public for believing the hoax of a newly discovered civilization on the Moon as no-one seemed to have panicked at the thought of an alien civilization so close to our home planet. Fear of unknown peoples was not a concern.

From those who believed the tall tale many were truly excited to learn more about their newly ‘discovered’ neighbors. So who is more enlightened them or us? Perhaps it is a lesson to be learned by those in power today who refuse to answer the question of possible alien life living on one of millions of extra-solar planets and perhaps visiting our planet. Certainly there must be intelligent life on other planets, at least a large percentage of Americans believe this to be true. So the only questions must be: Do they know we are here and have they bothered to drop by for a visit? But that is perhaps a question for another time. Certainly the people who lived during the early years of the 19th century had no problem believing that other civilizations existed on other worlds, in fact they welcomed them.

