

History

Revisited

Julian Nott reprises his Flight Over the Plains of Nazca

by Julian Nott

Photos by Julian Nott, Eduardo Herrera, Peter Cuneo



The famous Nazca Lines and designs in Southern Peru are a fascinating and unexplained mystery, still debated by archaeologists and scientists. From the ground, the work is quite invisible. Yet if you rise just a few hundred feet in the air, you are amazed to see marks, drawings, huge triangles and precisely drawn straight lines, covering, in all, about 200 square miles of the Pampa de Nazca, The Plains of Nazca. There has been no significant rainfall in the area since the last ice age, 20,000 years ago. This has allowed the preservation of some of early man's most extraordinary works.

Some of the markings are several hundred feet wide and thousands of feet long, roughly resembling modern airport runways. This has led people to suggest Nazca is an ancient landing place for visitors from outer space or perhaps that the lines were made to be seen from alien spacecraft flown in prehistoric times. As a more plausible idea, Jim Woodman

suggested twenty-five years ago that the Nazca people might have used balloons. To prove this theory, Nott and Woodman made the first flight of a "prehistoric" balloon over the Nazca lines. Nott feels it belittles the Nazca people to suggest they needed extra-terrestrial help. Numerous archaeological treasures are testament to the remarkable skills of ancient Andean peoples. If the designs were seen from the air, it is much more plausible to suggest balloons were used since Nott unequivocally demonstrated they could have flown balloons over a thousand years ago.

It is not difficult to imagine how the lines could have been constructed. For instance it is known exactly how Roman engineers made roads across Europe that run precisely straight for hundreds of miles. What is more intriguing is why they were made. Would they have been made if no one could see them? Would da Vinci have painted the Mona Lisa if he could not step back and admire the finished canvas? Distant mountains overlook the Nazca

Plains but none of them provide a good vantage point: the designs are only recognizable flying overhead.

Recently Nott, an Oxford educated scientist and design engineer, long time BFA Member, and multi-world-record-setting balloonist, decided to recreate his flight over the Nazca Plains using only materials and techniques available to the Nazca people who made the lines in ancient times! The simplest possible methods were used: a cotton fabric balloon heated with burning logs.

Nott designed this balloon based on archeologist evidence. The cotton fabric used for burial shrouds in desert grave, all around Nazca are adequate to make a balloon. But Peruvian museums and collections contain numerous examples of superbly decorated pre-Columbian cotton fabrics, almost tapestries, showing that early Andean peoples had the skills to make far more sophisticated fabrics than needed for a balloon. Many examples are still dazzling to see a thousand years after they were made.

Nott writes, "As you can

easily understand, this project was intriguing to many balloonists and I was able to get wonderful people to participate. Peter Cuneo and Barbara Fricke came to Nazca and I was lucky enough to have Peter fly with me. Having designed the balloon, I approached Best Aviation to build it. I had long admired the excellent quality of Bert Padelt's work. He and his wife Joanie did a marvelous job of organizing the construction so it went quickly. In Peru they organized the layout of the balloon with equal skill: it was not easy to manage 600 pounds of cotton fabric. Initially only a small volume could be lifted and inflated over the fire and this had to rise and lift the rest of the balloon without tangling.

A lot of care went into the choice of fabric. It had to be something the Nazca people could have woven. This was easy since their skills far exceeded what was needed for this balloon. But it had to have adequate tensile and tear strength while being light.

When people see photographs of the balloon the general reaction is that it was

very dangerous. But in fact Bert and I did a long series of tests to ensure the attachments were safe. [The rest of the fabric stressing was fairly straightforward].

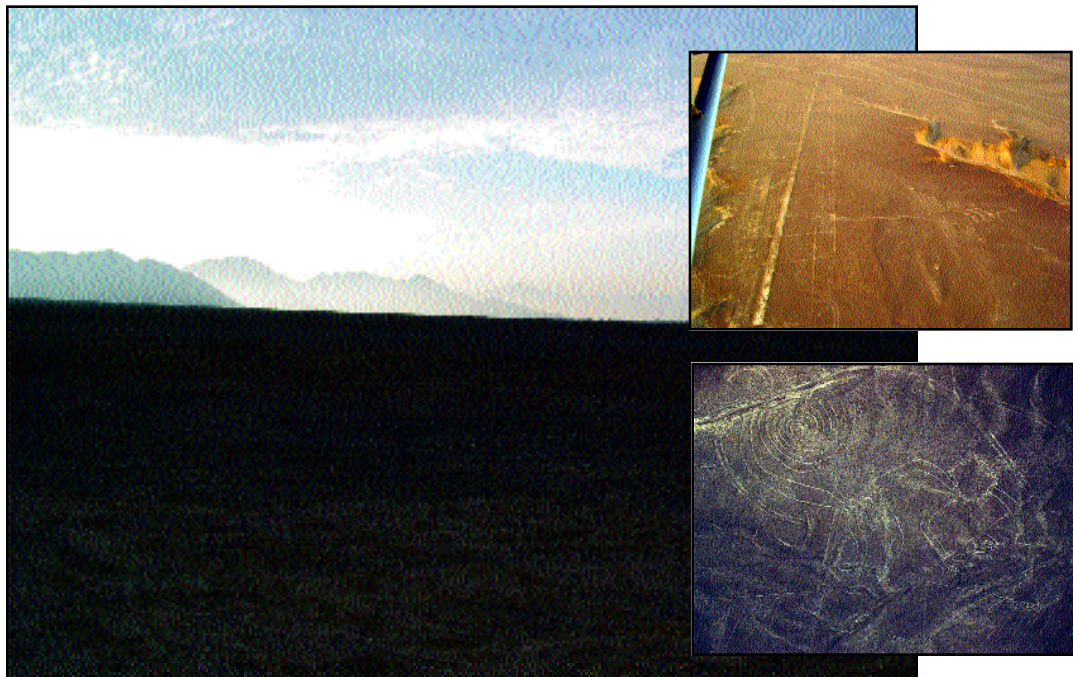
Low porosity was of particular importance and this is a fascinating subject. When we built the first prehistoric balloon it was so porous I feared it might not fly at all. But inflating it over a fire and exposing it to suitable smoke for a long period, soot particles filled up the fabric

The Montgolfier Brothers added all sorts of unusual things to their fires, rotting meat and old boots – literally. Historians generally dismiss these strange choices, commenting that only the heat was important to creating lift. As an example, the current description in the London Museum of Science & Technology at South Kensington attribute all sort of motives to The Brothers unrelated to the lift of the balloon. But in fact the quality of the smoke is crucial to fill the pores. So, it was important to success that Dave Allen, from the famous family of smoke balloonists, came to Peru to make sure we used the right kind of fire.

The shape was chosen because it is made from straight lengths of fabric. It could be made sitting in the sand without patterns or a cutting table, indeed without even a ruler!

Beyond the balloon and a fire the only other component of this starkly simple craft was the gondola. The classic reed boat, known in Peru and Bolivia as the “Balsa“, has been made since ancient times. The gondola was made by hand on one of the “Floating Islands” in Lake Titicaca. Twelve and a half thousand feet up in the Andes, the islands are a very unlikely workshop! Local people cut the totora reeds that grow like weeds in Lake Titicaca and simply make huge floating rafts where they live and work. There is even a post office on one of these islands. The construction of the boat needed only reeds and twine, simplicity in keeping with the project.

Again people who saw the boat thought it was very flimsy.



While the plain is rimmed with mountains, the remarkable and mysterious lines can only be viewed from directly overhead where some take on the fashion of a modern runway with adjoining taxiways (top inset); others could be animate creatures like a monkey with its long curled tail (bottom inset), or a mysterious water creature (opposite page).

But two eight ton ropes [tested on an Instron] were threaded from end to end: the boat was extremely strong.

A large ground crew was needed, as well as a large, but inexperienced, local team. Jeff Hall brought equipment and his invaluable professional balloon crew. The only balloonist operating rides in Peru - [Globos de los Andes - www.GlobosPeru.com](http://www.GlobosPeru.com) - Jeff, formerly based in Miami, is a licensed aircraft mechanic and drove from Cusco, twenty grueling hours on roads as high as 14,000 feet.

To start inflation ropes between two slender wooden poles lifted the balloon. A fire of Hurango logs was made in a long, covered trench. [Hurango is indigenous to Peru and would have been available to the ancients.] This allowed the heat from the fire but neither flames nor sparks to reach the balloon. The trench only sloped up by a few feet, but this was quite enough to make the hot air flow rapidly.

“Because it burned continuously, unlike the burst of a normal burner, a surprisingly small fire was enough to leave the



Above, the reed basket under construction on a floating island on Lake Titicaca. Below, the finished boat-like gondola on the Nazca plain.



ground crew struggling to hold the balloon down,” explained Nott. As the balloon rose, the poles were dropped and it rose to its full height.

Finally the great moment came and the balloon carrying Nott accompanied by Peter Cuneo rose into the morning calm. The flight was a beautiful culmination of all the lengthy preparation.

When the first flight was made, one of the objectives was to help draw attention to the Nazca Lines and increase their protection. The flight certainly helped generate the current worldwide interest in preserving the lines as a Peruvian treasure.

On his earlier visit to Nazca Nott was allowed to walk freely over the “Nazca Pampa” and even saw a light aircraft land on one of the “runways”. With the reverence now rightly given to The Plains, Nott found it hard to believe this was ever allowed.

THE BROADER MEANING OF THE FLIGHT

“What I think is fascinating is that the Nazca ‘02 flight demonstrates how extraordinarily simple it is, technically, to make and fly a hot air balloon,” says Nott. “From the earliest civilizations anyone with just a loom and fire could have flown. The difficulty I believe lies in finding the intellectual courage to think one could invade the heavens, the realm of the Gods. What was lacking, except perhaps at Nazca, was the ability to look at what is available and choose to use it in a way that dramatically overturns previous notions of the possible. This is a message for all people at any time in history.

I think it is no accident that the first known balloon flight, the Montgolfier Brothers, took place not long after the American Revolution, not long



The inflation takes place in four steps. Top: the balloon envelope is stretched between two poles. Next: An underground pit serves to allow the heat and smoke from a fire to flow into the envelope. Next: As the envelope inflates it is slowly allowed to rise until finally it is attached to the reed basket.

Right: With the dumping of ballast, Nott and Cuneo are skyward bound, recreating the first historic flight above the Plains of Nazca.

Opposite page: Upon landing the envelope is cut loose and, as it is designed to do, turns itself inside out, losing lift, and falls back to earth.



before the French Revolution and at the time of The Enlightenment and the beginning of science. I think it is fair to suggest that having the courage to fly - "Sapere aude" - was a symptom of the complete upheaval of ideas at the end of the eighteenth century in Europe and America.

This flight represents a great lesson for everyone in every age. Step one, look around at readily available resources and imagine how

they could be used in entirely new ways to transform the world. Step two, find the intellectual courage to disturb the universe."



For more information about Nott and the flight please visit www.nott.com.



Note: Julian Nott would like to thank Canon Camera for supporting the project as well as the Instituto Nacional de Cultura of Peru and the Dirección General de Aeronáutica Civil of Peru for their kind and helpful cooperation, which made the flight possible.