

ORBITAL LITCHI – BREAKING THROUGH THE LOOKING GLASS

Author : Pignolet Guy

Science Sainte Rose, La Réunion, France, Europe
pignolet@grandbassin.net

Co-author : Béton André

Independent Painter Artist, La Réunion, France, Europe
andrebeton@netcourrier.com

Co-author : Casasanto Valerie

Space Outreach™, United States of America
VCassanto@verizon.net

Note on Special Contributors : in response to a public call, the following persons have made special contributions for the preparation of this document : **Bègue Alexandre, Brioude Alette, Charles Meelane, Dardaillon Michel, Dupuis Alain, Gazaix Jean-Louis, Jeantet Dominique, La Selve Jean-Pierre, Lassus Patrice, Leclerc Erik, Payet Huguette, Pélerin Joël, Robert Boris, Souch, Tahar Abbas.**

ABSTRACT

Thanks to the innovative “Fly Your Stuff” programme proposed by visionary space entrepreneur Robert Bigelow, a litchi shell from Reunion Island flew a Dnepr launcher to orbit the Earth aboard the Genesis-II inflatable space habitat experimental module. An empty shell of a litchi, a typical tasty tropical fruit grown on Reunion Island, taken from semi-dried products made by local farmers, had been especially prepared to become the first spacefaring litchi. The flight of the Orbital Litchi has become a full scale regional event in Reunion Island. The public announcement that it would be presented in Hyderabad at the International Astronautical Congress has further motivated many talented individuals from La Réunion to contribute comments, literature and visual art about this new symbol for a very special region of Spaceship Earth. Undoubtedly, the Orbital Litchi is extending the range of the “local” perception of La Réunion and is bringing a new sense of reality to its inhabitants, on the island and worldwide. Conversely, a result of this extended vision is the awareness of an increasing gap between the global reality of an evolutionary planet and the desperately limited and frozen views of the administrative culture, indicating an upcoming crisis..

“Fly Your Stuff”

In July 2006, Las Vegas entrepreneur Robert Bigelow broke the news with the launch of Genesis-I, a prototype step towards the development of the first private inflatable large space facilities. Most unusual and interesting was the fact that on board of the 4m x 2.4m spacecraft were floating postcards and various items sent up as a direct personal participation by many employees of Bigelow Aerospace.

Then, and it has been a great innovation in public relations, Bigelow Aerospace introduced the “Fly Your Stuff” programme, offering anyone who was willing to take up the opportunity, to fly postcards and small items at a very reasonable and accessible cost on board of the Genesis-II module, due to fly in 2007.

The item had to have a mass less than 27g and to be “no bigger than a golf ball”. In a kind of flash of inspiration, we saw the golf ball painted red, and it looked like a litchi,

a typical tasty fruit from La Réunion where it had arrived from China in 1764. Litchis from volcanic Reunion Island, where they are called “litchis”, are known to be among the best tasting in the world, and according to some experts, they might even have specific aphrodisiac properties.



Fig. 1 - “Philippine” litchis, for making special dreams happen [**contribution by Meelane Charles**]

“dried litchi” variety of the product, a specialty prepared by a group of farmers from Sainte Rose by controlled evaporation, which then allows long conservation at room temperature. The dried litchi is a delicacy in the form of a tasty prune that retains under its thin skin a long delicious fragrant smell reminding of its exotic origins.

Preparation for the flight

The shell of the “Orbital Litchi” was cut in two halves, emptied from the prune and the stone, and reinforced with a thick inner coating of epoxy putty before the two halves of the skin were sealed together again. Then, in order to enhance the look under the cameras of Genesis-II, the litchi went through make-up, like any TV guest would do, and the reinforced shell was painted all over with a shiny and glittering finger nail lacquer to eventually become the original Orbital Litchi, ready for space.



Fig. 2 – The Orbital Litchi in Sainte Rose, ready to begin a long journey to Las Vegas, Yasny, and Earth orbit...

Mid-October 2006, the Orbital Litchi flew with DHL from La Réunion to Las Vegas, where it was bound to arrive before the 1st November 2006. It was later sent with the Genesis-II spacecraft and other “Fly Your Stuff” items to the Kosmotras Yasny spaceport in Central Siberia for a launch initially expected around the end of January 2007. After several delays and a successful return to flight of the Dnepr launcher in April 2007, Genesis-II was eventually launched and successfully deployed on a 555 x 562 km, 64.5° inclination orbit on the 28 June 2007.

The Orbital Litchi was first seen on the images released by Bigelow on their website on the 5 July 2007, and subsequently it has been spotted on several other “Fly Your Stuff” images released by Bigelow Aerospace.

The Genesis-II space module itself was spotted by the author just before dawn on the 25 August 2007 as it was passing over the center of mainland France.

“I was on vacation in a deep countryside location with no city lights around... I got out fifteen minutes before the expected time to get my eyes accustomed to the darkness



Fig. 3 – First image of Orbital Litchi floating in space on the 5 July 2007 [Fly Your Stuff image by BigelowAerospace]



Fig. 4 – The Genesis-II inflatable experimental spacecraft is 4.4m x 2.4m in diameter [BigelowAerospace Document]

with improved acuity. At 05:04:40, I was able to catch the slightly hazy spot of light of Genesis-II as it was approaching Deneb of Cygnus, a good marker where I was waiting for it to appear, and I could follow the spacecraft for about 30 seconds with my naked eyes before I lost it. Great feeling. Thanks Bigelow Aerospace. And thanks Heavens-Above for the wonderful prediction charts.”

Making Headlines

The Orbital Litchi has made headlines in the regional newspaper “Journal de l’Ile de la Réunion (JIR)” on several occasions, and several articles have been published in the



Fig. 5 – Front page of Journal de l'Île de La Réunion on the 26 May 2007. [contribution by Alexandre Bègue]

other newspapers “Témoignages” and “Quotidien de La Réunion”. The Orbital Litchi has appeared on regional TV networks with RFO and Antenne Réunion, as well as on many local radios. Some of the images and interviews presented by RFO were later broadcasted worldwide by the French satellite TV5 global network.

The flight of the Orbital Litchi was also reported worldwide through the Internet global network of the association « Réunionnais du Monde » that connects people coming from Reunion Island that live and work in mainland France, in the European Union and all over the planet.

Calling for contributions

Shortly after the Orbital Litchi was launched, a call was made via the regional newspapers and through an e-mailing to more than three thousand selected addresses calling for personal contributions to be included in this paper for the International Astronautical Congress and to be later published in a hardcopy French version.

Fifteen persons have responded with enthusiasm to the call, contributing encouragement, novels, poems, pictures, paintings, and a videoclip. The work of all the contributors has been posted in the section devoted to the Orbital Litchi on the website “www.science-sainte-rose.net”, as well as the press articles mostly contributed by Alain Dupuis, a leading story writer at Journal de l'Île de La Réunion.

“Floredo Quocumque Ferar”

This beautiful latin motto of La Réunion means “Wherever I may be sent, I’ll be blossoming”. Aliette Brioude wrote a poem to say that La Réunion, an island in the world, created the litchi fruit that went to conquer space from its own dust, but that it is itself a speck of dust on Planet Earth. By merging with the vast Universe, the Orbital Litchi brings the extremes together, where the infinitely small discovers the infinitely large...



Fig. 6 – La Réunion in the jewel-case of the Universe
A cosmic poem [contribution by Aliette Brioude]

The tale of the Martian Litchi

“ At Point Alpha Prime, our systems have detected a perfect dome partly buried in the depths of Valley Marineris...”. It will be the mission of Réunion born astronaut Stan Lovelle to go with his Mars rover and find out about...

In a few pages of this amazing short science-fiction novel that was contributed by Michel Dardaillon, the reader is taken into a fantastic story. It tastes like a cocktail of the final moments of Clarke’s and Kubrick’s “2001 : A Space Odyssey” that would be mixed with the atmosphere of Brian de Palma’s “Mission to Mars” and Tarkovsky’s “Solaris” with surges from a dramatic inner past. Of course, a litchi is at the core of this magic...

Bravo...

... without crazy ventures like the Orbital Litchi...

... there would be no art, no fantasy, no humor... we all would be dressed in grey, pushing caddies inside gloomy commercial centers ... [contributed by Patrice Lassus]

Litchi flower and recipe



Fig. 7 – Litchi flower [**contributed by Abbas Tahar**]

... and a tasty **contribution by Dominique Jeantet**, who lived for 6 years in India :

“Flowers of chips, litchi and ginger wrapped in courgette”
=====

Ingredients (4/6 persons)

20 litchis
3 small curved courgettes
sweet or salty crystallized ginger
1 paquet chips

Preparation

Cut finely small stripes of courgette lengthwise.
Steam them few seconds to give them tenderness.
Put them aside.

Peel and stone the litchis,
Then slip a small piece of ginger in their center.

Wrap each litchi in a stripe of courgette
and fix them in shape of a flowerbud, using a wooden
toothpick.
Put each flower on a chips. . .

It is ready to eat ! ... Bon Voyage !

Nout litchi orbital

... Au d’sus d’son ti pays, brille comme un fanal...
(in orbit above its tiny island, shining like a beacon...)

In his poem entirely written in colorful creole language,
contributor Jean-Pierre La Selve tells of the little modest
litchi that prays just to grow up, and one day comes an
engineer... little litchi goes high above, becomes a beacon..

Belem and Litchi

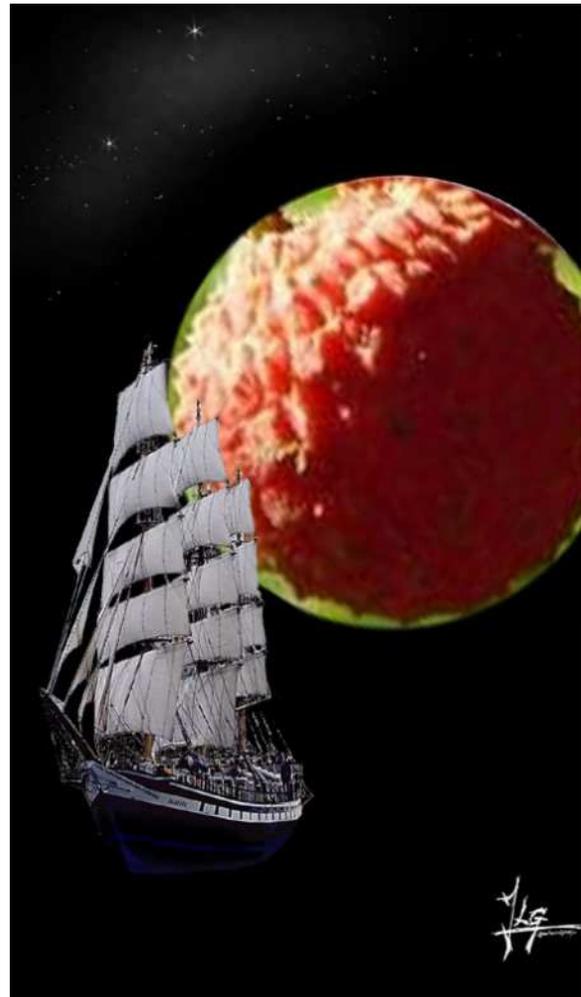


Fig . 8 – An original oil painting
[**contributed by Jean-Louis Gazaix**]

Cosmonaut and litchi



Fig. 9 – Litchi in orbit
A computer creation [**contributed by Boris Robert**]

Litchi and Venus



Fig. 10 – Photographic art [contributed by Joël Pélerin]

Speeding in space

19h52: Le litchi de l'espace passera au dessus de la Réunion à une vitesse folle



Fig. 11 – Police radars ready for the space litchi, due to fly over La Réunion at terrific speed on 02/08/07 – Drawing is contributed by Souch in Journal de l'île de La Réunion

Questioning the question

The ultimate contribution after the public call came in the form of an email from a source only identified as “ora”, and it was just a simple question : “are you normal !!!!”.

More comments

Contributor Erik Leclerc is a space professional. For Erik, the flight of the Orbital Litchi and the IAC meeting are occasions to raise many questions and comments :

Visibility

Outside of La Réunion, the Bigelow projects have had little visibility in France or in Europe, rien, nothing, nada, nichts. French national and European space actors, and media as well, seem to be only interested with the Space Station and Galileo and ATV, that are quite ordinary spacecraft except for the fact that they are “made in EU”. The Orbital Litchi has remained much too confidential outside Reunion Island to become a marketing banner that would help national decision makers understand that :

- La Réunion may take part in the general space effort, and
- the litchi products from La Réunion are more delicious than others and may be exported...

New horizons for La Réunion

In 2006, Nasa has installed a temporary tracking station in La Réunion for the launch of “New Horizons” to Pluto. An earlier generation had been smart enough to install one of the global stations of the Omega navigation system in La Réunion, but the decision makers of the 21st century seem to be unaware of the advantages offered by La Réunion.

A sense of purpose

Why do we go to space ?.. we know since famous Youri that man can live in weightlessness, and Poliakov’s record of 437 days in orbit is already 20 years old. Kilograms in orbit are expensive, and even more for manned flight.

At a cost of 300\$, the Orbital Litchi is a very inexpensive way to develop a symbol for an entire island. This means “integrating” a little part of La Réunion into a space venture, and it is a call for decision makers to support more ambitious projects, in La Réunion, in France, in Europe, and in the World. We need to develop launch systems that will be powerful, economical, ecological, in order to go and settle on the Moon, and later on Mars and other worlds...

Men seem to have forgotten their deep nature of pioneers, adventurers and conquerors (all terms taken in their peaceful meaning). Let’s hope that soon there will be ambitious programs that will bring back a taste for scientific discovery and for the conquest of “new horizons”...

A symbolic purpose

Co-author Valerie Casasanto tells how the very process of preparing this paper changed her mind :

“In the beginning, I thought, OK, let’s see how we can find a scientific purpose and have young people study how the litchi seed germinates and how it might be different in microgravity and/or what the effects of exposure to space would have on the litchi seed. Maybe we could have students all over Reunion island planting litchi seeds and comparing them to the one flown in space...

Then I found out that the litchi would never be coming back, at least not any time soon. The Litchi will orbit aboard Genesis-II until some time in the future when the gravity of Earth will pull it in and she burns up on re-entry.

After spending more than a decade flying experiments in space (Space Shuttles, rockets...) there always had to be a justification. It was always necessary to provide a concrete rationale for doing it.

This is because government space programs are expensive endeavors and the taxpayers are paying for it so one always had to make a case for it, and rightly so. But after seeing people’s reactions to the flight of the litchi in writing and art, I see that there doesn’t have to be ...

With the Genesis-II demonstration mission of “low cost access to space,” anyone can fly anything, without a reason.

There will come a time when low cost access to and from space is a regular occurrence. We don’t know when this will be. However, this litchi project could be a precursor to a broader outreach program involving actual science where even small regions like Reunion may take part... Sending litchi seeds in space – comparing to seeds on the ground... Yes this is a good thing to do – to teach children about space, the environment, and connect them back with their Earth. But not having a scientific purpose may also be better than having a focused goal, as often required in the frozen view of our administrative culture.”

The search for meaning in life

The litchi story makes me think, does there always need to be a reason ? Must there always be a “scientific justification” for doing something in space ? Why can’t space be there for everyone ? It triggers in me the creative spontaneous side of myself.

For the people of La Réunion, a part of them is in space, a part of their island. They have not much of an official space program, no “Reunionaute” has flown in space (yet...), but their litchi can, and at the same time connect them with the world and universe and make everyone dream and maybe even transform them. Let the litchi be a symbol for La Réunion as well as a catalyst of change of thought...



Transformation

The Litchi made me see,
that it need not always be,
Perfect or logical or even have a reason,
for the litchi itself is a perfect being.

Round like a planetoid with a color so brazen,
But it’s imperfect bumps and craters
are what make it so amazing.

Who could imagine
that hidden under a bumpy dull cover
there could be such a beautiful lover ?

Under it’s imperfect shell lies a perfect fruit so soft,
wearing a color so loud.
This little creature made me change my thought,
to one of anything is possible
instead of follow the crowd.

[A poem contributed by Valerie Casasanto]

Around the Orbital Litchi symbol

Ten years ago, high school students from La Réunion had joined with students from Naltchik, in the Russian Republic of Kabardino-Balkar. Together, they had built and launched the “Sputnik-40-Years” in commemoration of the first artificial satellite of the Earth. While acknowledged by a large number of people in La Réunion, the feat had remained for most of them something “out of this world”. Not so for the Orbital Litchi, which has caught the favor and the recognition of the inhabitants of La Réunion, adding a new dimension to the identity of the island.

While local distances are counted in kilometers, distances to mainland France, Europe, and to neighbouring countries in Africa, Asia, Australia, are measured in thousands of kilometers. The Orbital Litchi has introduced the million kilometers into the ordinary daily existence of La Réunion.

Beyond national and European networks, the relation of La Réunion with other regions over the entire planet are of increasing importance. The Orbital Litchi is definitely contributing to bring the substance of reality to the “worldwideness” of the island.

The reality gap

The global reality evidenced at the local level by the Orbital Litchi however highlights a widening social gap with national state institutions. At the same time when it appears so easy to become a space-minded region at a financial cost of less than 500 euros, which was the cost for sending the Orbital Litchi flying over almost every country in the world, two students were experiencing more than one month of lengthy and painstaking bureaucratic hassles to get a visa to enter Reunion Island because one of them was not born within the “right” borders.

While information and advanced concepts, including “diversity”, are shared through the entire Biosphere, national and administrative barriers are growing every day more difficult to handle, and clearly there is a major upcoming crisis between the inhabitants of an evolutionary Planet Earth and the frozen administrative concepts that are re-emerging like fossils from older times...

Epilog

Ten years ago again, 1997, the Education Committee of the IAF had met in Sainte Rose, Reunion Island, for a seminar about our future and space, and already they came to a conclusion of an imminent social, political and financial crash, worldwide. Hopefully, enhanced awareness, such as brought by the Orbital Litchi, may help find ways out of the crisis, and we may also find hope in such concepts as the “eclosion” process envisioned by science-fiction writer Bernard Krummenacher in his “Voyage en Acratie”...



Fig.12 – Irina and Edouard, two young students, citizens of Planet Earth, wasted a number of hours and days...



Fig. 13 – ... just to get a stamp to enter La Réunion. In the same time, the Orbital Litchi flew over a hundred countries.

Acknowledgements

First we want to express thanks to the RéuniFruit company in Sainte Rose for providing the original candidate litchi. We would like also to give special thanks to the organisation “Réunionnais-du-Monde” for relaying the information to the Reunionnese community worldwide. We are both impressed and thankful to “Heavens-Above” for the quality of their website that allowed us to see among the stars the tiny spot of Genesis-II. And most of all, we are very thankful to Robert Bigelow and his teams for giving us such a great opportunity. Unfortunately, Bigelow Aerospace was unable to take part in the development of this presentation for proprietary reasons and because of International Traffic in Arms Regulations of the Government of the United States of America...

The Orbital Litchi is a brave attempt at helping the world by means of the exploration of fantasy – André Béton

Le letchi sidéral – Lychee in the stars

Objet inanimé que l'on croirait sans âme,
Sous ta peau émaillée de savants quadrillages,
Tu portes au fond de toi, invisible oriflamme,
La vie que t'a donnée ce coin de terre sauvage,
Cette île, métissée de scorie, de corail,
Et où de sang-mêlé, comme toi, je naquis.
O mon letchi-pays, aujourd'hui ma bataille,
De te hisser plus haut, un beau jour j'eus envie,
J'ai voulu faire de toi un letchi sidéral,
Car nul n'est, tu le sais, prophète en son pays,
Où même s'il est parfait, on le trouve banal.

Moi, j'étais un enfant quand j'ai trouvé ton âme,
Depuis ce Noël où, au creux de mes souliers,
Toute drapée de rouge, comme une grande Dame,
Tu vins m'offrir ta chair, tendre, blanche et sucrée.
Ca c'était pour le goût, mais vint l'autre cadeau.
Je n'ai eu qu'à couper ton noyau au milieu,
A prendre d'une allumette un tout petit morceau,
Et, toupie vernissée, tu tournas sous mes yeux !
Ta valse capricieuse, un tantinet comique,
A deux temps, à trois temps, parfois même à vingt ans
Me fascinait toujours, car elle était magique.
Gravée en ma mémoire, elle l'est pour longtemps.

Mais aller dans l'espace n'est pas chose facile.
On quitte son pays, subit des examens.
Démarches et conditions sont cent, que dis-je, mille,
Et puis on ne sait pas, si un jour on revient.
Je pense à Laïka, la chienne de l'espace,
Je pense au chimpanzé, heureux dans sa forêt,
Auquel on a appris, ça passe ou bien ça casse,
A jouer des manettes sans pouvoir s'arrêter.
Je pense aux hommes aussi, sacrifiés pour la science,
Qui, en perdant leur vie, ont oeuvré au progrès.
Alors la nuit je rêve que tu fais alliance
Avec le phare breton qui est à tes côtés.

"-Far breton au letchi-" , recette à étudier !
Et puis les deux anneaux scelleraient votre union
Qui pourrait se fêter, peut- être en Réunion ?
Le cube se garnirait fort bien de vos photos...
Ça c'était pour le rire, quelque fois il en faut.
Le diamant, pour ta vie, n'est pas très important.
L'essentiel, pour vous tous, c'est d'être vus longtemps.
Comme des petits fous, valsez encore mille ans.

Tous, poussières d'étoiles, nous nous retrouverons.

Inanimate item, hiding your little soul,
Below intricate nets, under your shiny skin,
In your heart you carry, as a secret banner,
The life given to you by this wild bit of land,
Laced with coral and harsh lava, this volcanic island,
And where from mixed bloods, like you once I was born.
You lychee from my sweet home, today my own battle,
One day came the desire, to take you to the stars,
I wanted to make you a space-faring lychee.
In his own land, as it is known, no one is a prophet,
And even if perfect, it would be found common.

Me, I was only a child when I found your heart,
On that Christmas Eve, when in my little shoes,
Dressed in your red gown, like a Fairy Lady,
You offered me your flesh, sweet and white tender.
This was for the taste, then came the other gift.
Your kernel only in halves I had to split,
And with a bit of stick, cut from a simple match,
You became a tiny top, spinning under my eyes !
Your capricious dancing, a little bit funny,
With two steps and three steps, steps of life and youth,
Always fascinated me, because it was magic.
Casted deep in my memory, there forever it will stay.

But to go in space is not an easy thing.
One goes away from home, and have to be tested.
Requirements go by hundreds, I should say by thousands,
And one does not know, if some day one ever will return.
I think of Laika, the lady-dog in space,
And I think of the chimp, happy in his forest,
That was taught, go or bust,
How to play controls with no possible stop.
I thought also of men, sacrificed for science,
Who, by losing their life, contributed progress.
And then during the night, I dream you make an alliance
With the kooky lighthouse floating at your sides.

"-Light cookie with lychee-" , a recipe to be studied !
And later the two rings would seal your lovely deal
Which could be celebrated, perhaps in Reunion ?
The cube would be covered with souvenir photos...
That was for the laughter, sometimes necessary.
The diamond, for your life, is not so important.
Essence, for all of you, is to be visible for a very long time.
Like crazy babies, please dance around a thousand years.

And all of us, made of stardust, will then be together.



Huguette PAYET (27-07-2007).

Freely translated by Guy Pignolet