Faraday Packaging Project

Interim Crit

Gray HAM 77116897

Design a revolutionary and ground breaking concept for either a new or existing everyday food or drink product of your choice. Ideas should be innovative and as unique as possible, and not currently available in the format, materials or design on shelf today. They should also focus on sustainability.

pro2pac

the complete food and drink processing & packaging event

17-20 March 2013 · ExCeL London

Co-located with ife

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THE FUTURE

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Prof. Cathy Barnes, Faraday Centre For Retail Excellence

- What is packaging?
- Why do we need packaging?
- What materials are used to make packaging?

Dr Benjamin Punchard, Global Director of Packaging Insight

1 Household sizes are shrinking, homes are getting smaller and household budgets are being squeezed
2 Mobile devices are an increasingly important part of our lives, how will this impact packaging?
3 The state will force corporations to become more responsible for consumers
4 Over 55's are becoming the most coveted and influential demographic for marketers
5 One-size-fits-all is dead, consumer want the ability to have some sort of input into what they buy

they lied to us

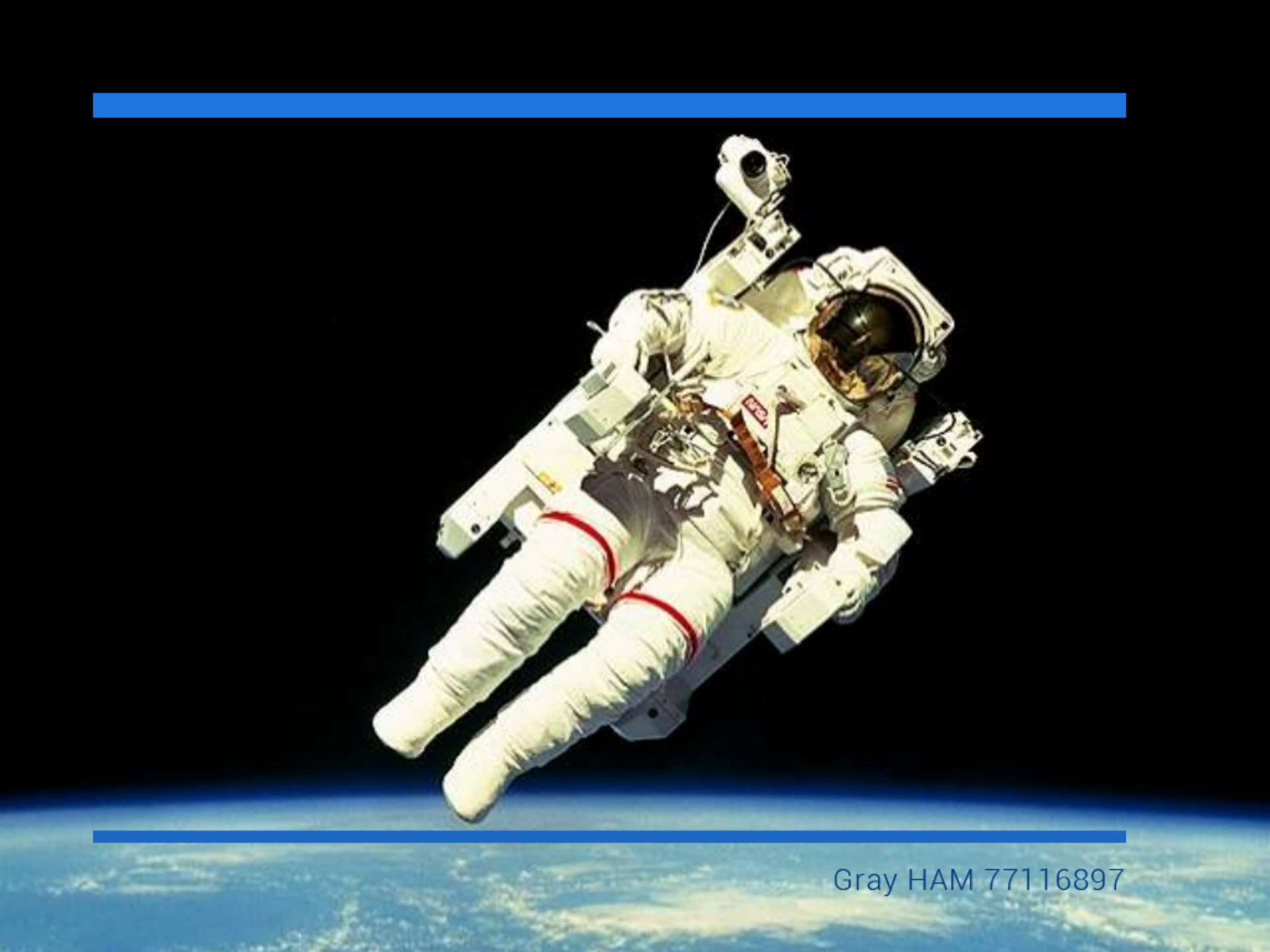
this was supposed to be the future

where is my jetpack,

where is my robotic companion,
where is my dinner in pill form,
where is my hydrogen fueled automobile,
where is my nuclear powered levitating house,

where is my cure for this disease

Who has no choice but to consume packaged food all the time?



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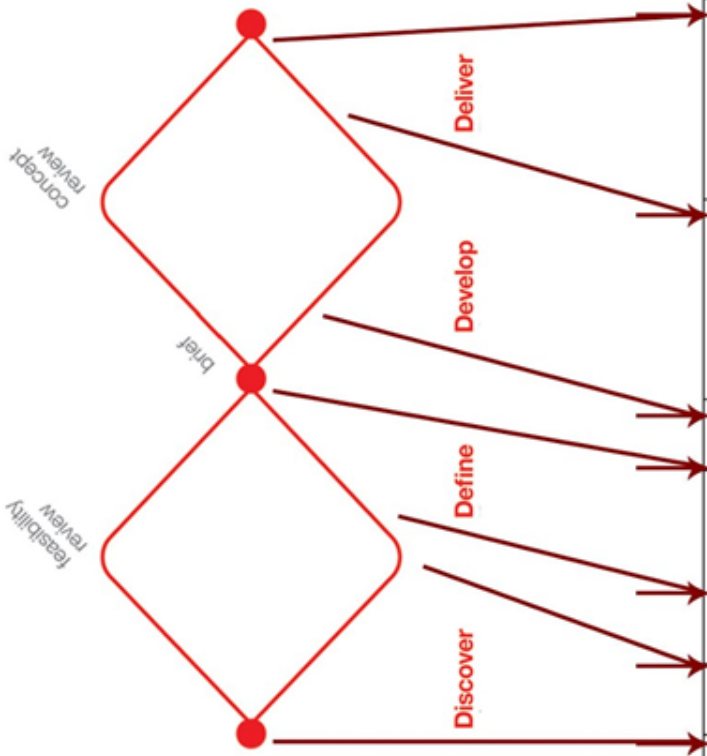
Gray's Brief

The focus is on the future, kansei, and sustainability.

Space travel is as inevitable as air travel of seafaring. I've taken Virgin Galactic as a case study, as well as all the food being brought up to space by various astronauts from all over the world.

Rather than the bland packaging being used by government agencies, these private space agencies have an identity to establish.

A lot of the principles of packaging still apply, and soon all our descendants will be going to space just like we would take a plane to another continent. It's better we start thinking about it now.



D2.2 Issues & Contexts (5), 2012-13: Pro2Pac competition

JK=Juha Kaapa, SH=Steve Hoffman and AS=Anne Schiffer

W/C	Monday	Tuesday	Wednesday	Thursday	Friday
5th Nov	Launch at 2pm in Studio		SH 10-12 & 1-4pm	AS 10-12 & 1-4pm	Talk by Cathy Barnes from Faraday Retail Research centre at 2pm in QSH 203
12th Nov	JK 1-3pm	JK 1.30-4.30pm	SH 10-12 & 1-4pm	AS 10-12 & 1-4pm	BPA301 at 10am; Lecture on packaging relating to health & food labeling
19th Nov	JK 1-3pm	JK 1.30-4.30pm	SH 10-12 & 1-4pm	AS 10-12 & 1-4pm	IL
26th Nov	JK 11.00am-3.30pm	JK in UCAS	SH 10-12 & 1-4pm	Interim Crit/ normal tutor group session as a crit	IL
3rd Dec	JK 1-3pm	JK 11-1pm	SH 10-12 & 1-4pm	AS 10-12 & 1-4pm	IL
10th Dec		JK 10-12 and 1-4pm	SH 10-12 & 1-4pm	AS 10-12 & 1-4pm	IL
17th Dec		JK 10-12 and 1-4pm		Final Crit	
Module leader	Juha Kaapa: j.kaapa@leedsmet.ac.uk; a.schiffer@leedsmet.ac.uk; steve@kangarroo.co.uk				

Nestlé

Kansei Engineering:
Nestlé embraces the Kansei design method for a better emotional connection with consumers

Kansei engineering is a Japanese design philosophy that is based on blending design with consumers' instinctive emotional connection to products.

The methodology was developed in the seventies by Professor Mitsuo Nagamachi, formerly Dean of Hiroshima University and was initially applied to car design. Kansei is based on translating into design attributes the meaning, and use, of words that consumers choose to describe how they feel about brands and products. This generates a range of data, which are statistically analysed to define the optimum combination of design criteria. The processed data provide clear directions for designing new packaging solutions that will reflect the product and brand values.

Nestlé Packaging and Design

Nestlé has a strong capability in packaging and design, and has a large global network of more than 500 packaging experts. Packaging serves a number of purposes, such as:

- Product protection during distribution and storage
- A vehicle for communication about the product and related matters, such as its nutritional attributes
- Functionality for the user, such as easy-to-open, re-sealable, portion controlled
- Attractiveness, which consumers expect in good products

Design is therefore a key component of a packaging solution. In addition to its internal design teams, Nestlé works with several Universities and Design Colleges, world-wide, as well as with selected Design Agencies.

Nestlé and Kansei

Nestlé has been exploring the opportunities that the Kansei engineering approach brings to packaging design, with the support of Professor Nagamachi as well as Design Perspectives from Faraday, and has done pioneering work in applying this technique to package design. Today, Kansei is one of the specific tools in Nestlé's Packaging and Design toolbox for consumer centric development. However, it does not replace the need for experienced industrial designers, graphic designers or packaging engineers whose skills are still needed to turn Kansei-generated data into tangible product packaging.

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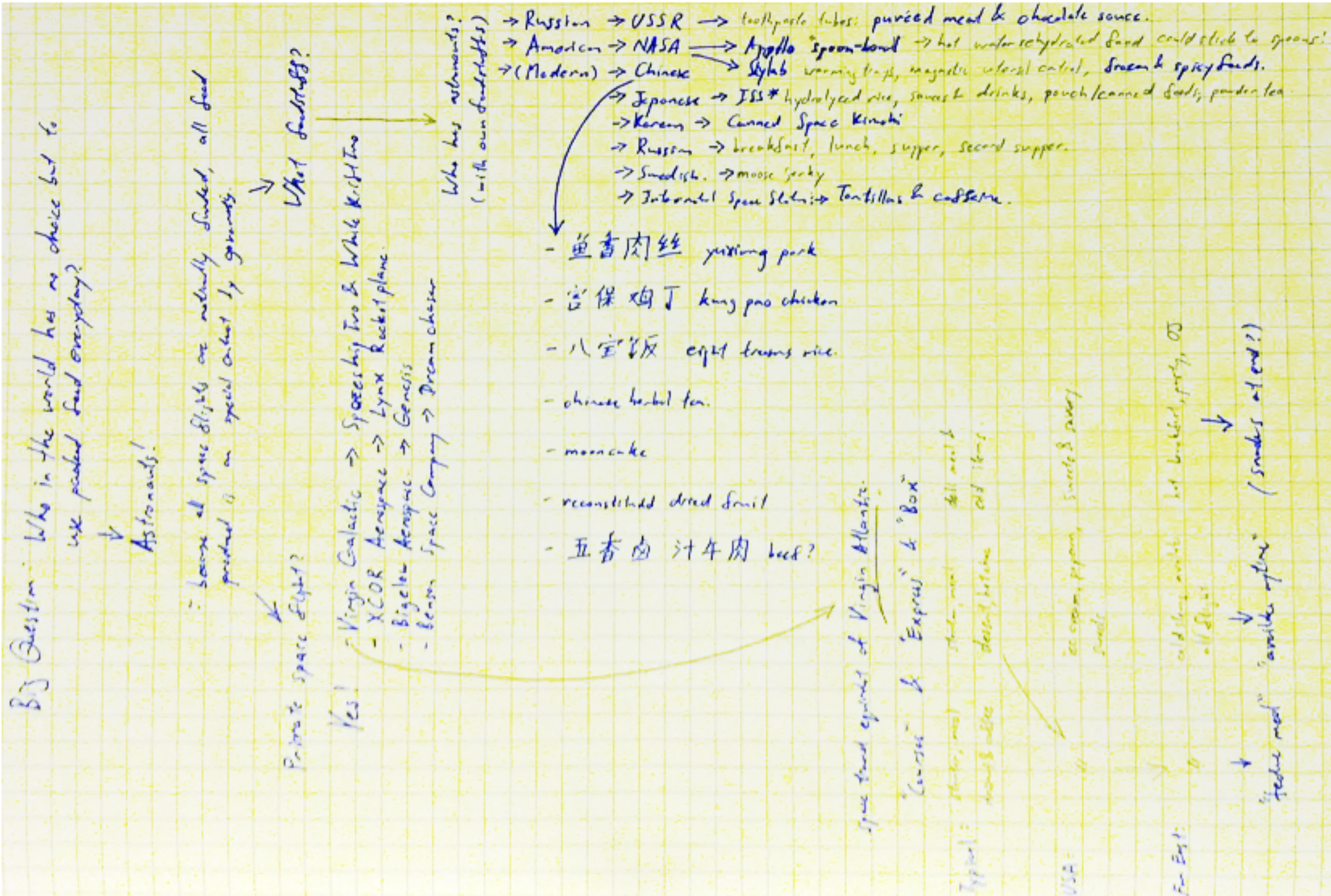

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Experiments [edi

#	Experiment	Code	Description
1	Cells in Space	CIS	Study of the effects of microgravity and space radiation on eukaryotic cells focusing on changes in the structure and function at the cellular and molecular levels
2	Microbes in Space	MIS	Study of the effects of microgravity on motility of bacteria, drug resistances as well as changes in gene expression (using the microarray approach). Expect to show some effects of bacterial growth using a pre-determined minimum inhibitory concentration (MIC).
3	Protein Crystallisation in Space	PCS	The purpose of this experiment is to compare the crystal growth of lipases on Earth with that grown in microgravity. Several test conditions will also be tested to improve the protein crystallisation process on Earth as well as in space.
4	Malaysian Food in Space	FIS	Increase the variety and quality of food available to space travelers by identifying new food items (specifically typical Malaysian dishes) that are appropriate for consumption during space flight.
5	Study of spinning motions in microgravity environment	TOP	A physics demonstration to show the effect of microgravity on the motions of spinning object using a top.
6	PR and Symbolics	PAS	PR and Symbolics activities.

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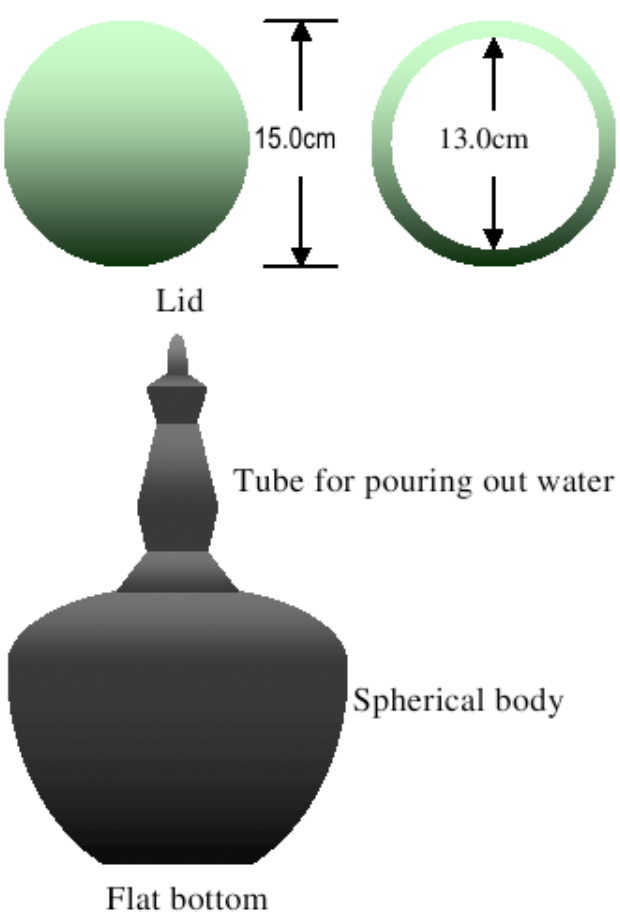
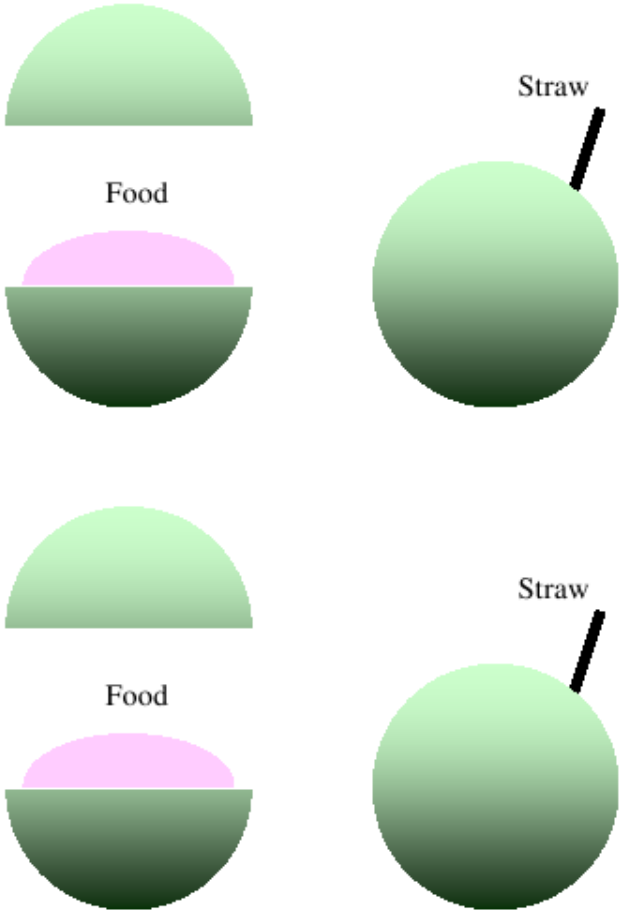
http://www.spacefuture.com/archive/
the_symbiotic_relationship_between_astronaut_program_and_space_tourism_development_a_third_world_perspective.shtml





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Typical menu onboard

Courses:

A welcome drinks service followed by a full meal service served in two sections.

Welcome drinks
Starter and main meal served with drinks
Dessert and Tea & Coffee service

Courses Express:

A full meal service served in two sections with combined drinks service

Starter and main meal served with drinks
Dessert and Hot Chocolate service

Supper:

A full meal service served on late night flight
Starter, main and dessert served together with drinks
Dessert and Hot Chocolate Service

Afternoon Tea/Breakfast Deli Box:

A self-contained deli style meal service consisting of time appropriate cold items

Sample menu for flights to USA

Courses:

A full meal service served in two sections
Starter and Main served together on a half tray
Separate Dessert and Hot Chocolate service

Movie Snack:

Ice creams, popcorn or sweets will be served by the crew to all passengers

Afternoon Tea:

A cold offering consisting of both sweet and savoury items served in a VAA Afternoon Tea Box

Sample menu for flights to the Far East

Courses:

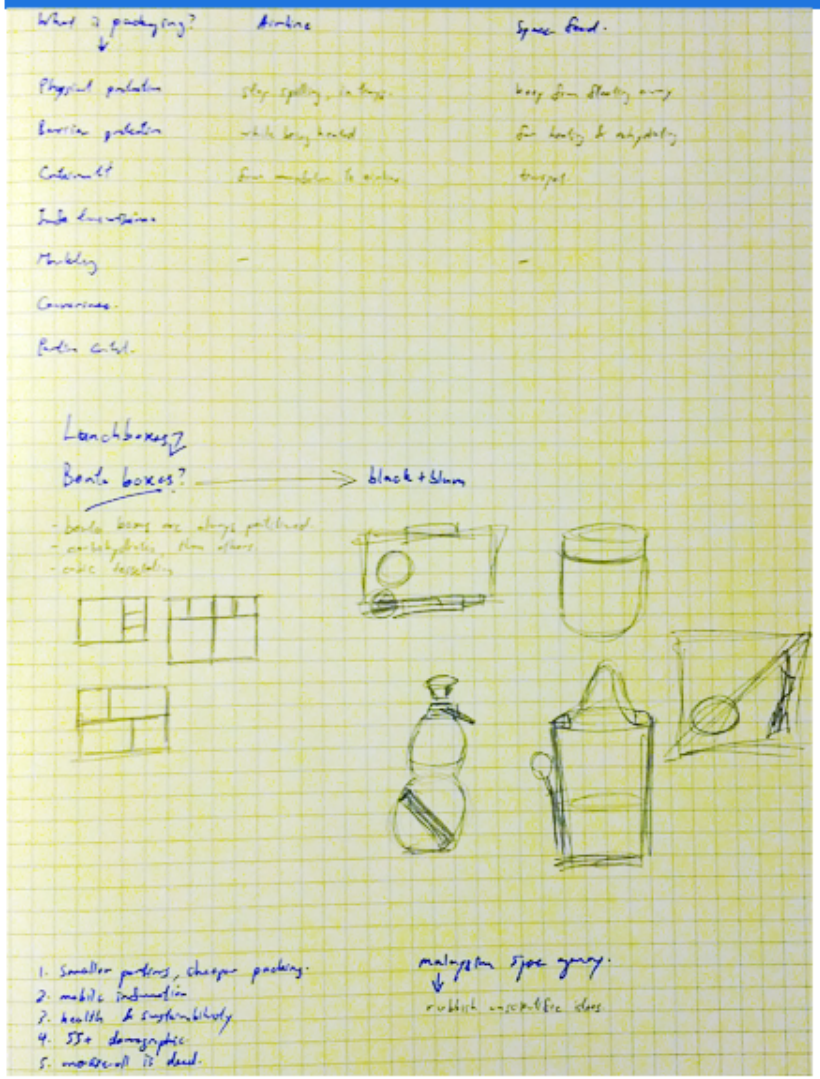
A full meal service served in two sections
Starter and Main served together on a half tray
Separate Dessert and Hot Chocolate service

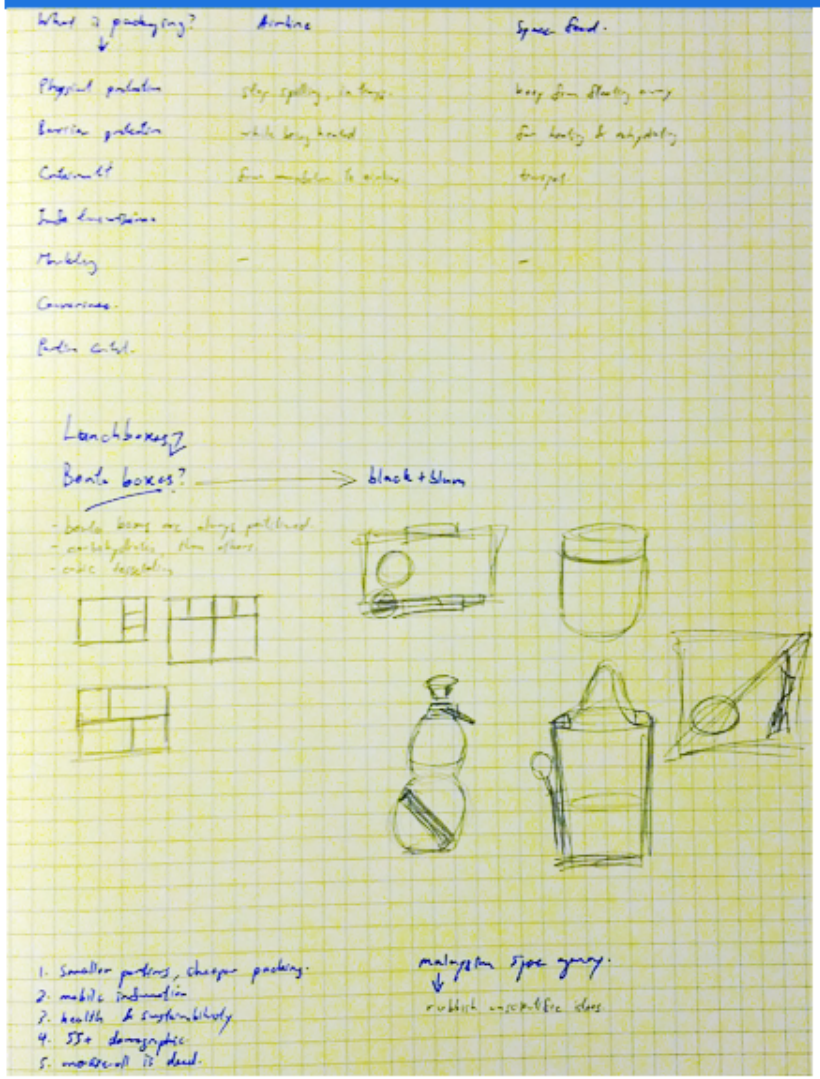
Mid Flight Snacks:

Cold items will be available for passengers throughout the flight

Breakfast:

A full hot breakfast served on a half tray with accompanying breakfast pastry and OJ


What is packaging?
Drinking
Space food.
Physical protection
Barrier protection
Containment
Information
Marketing
Convenience
Packaging waste
Lunchboxes?
Bento boxes?
black + blue
1. Smaller portions, cheaper packaging.
2. mobile information
3. health & sustainability
4. 55+ demographic
5. more on it's own.
malaysian space agency.
rubbish recyclable ideas



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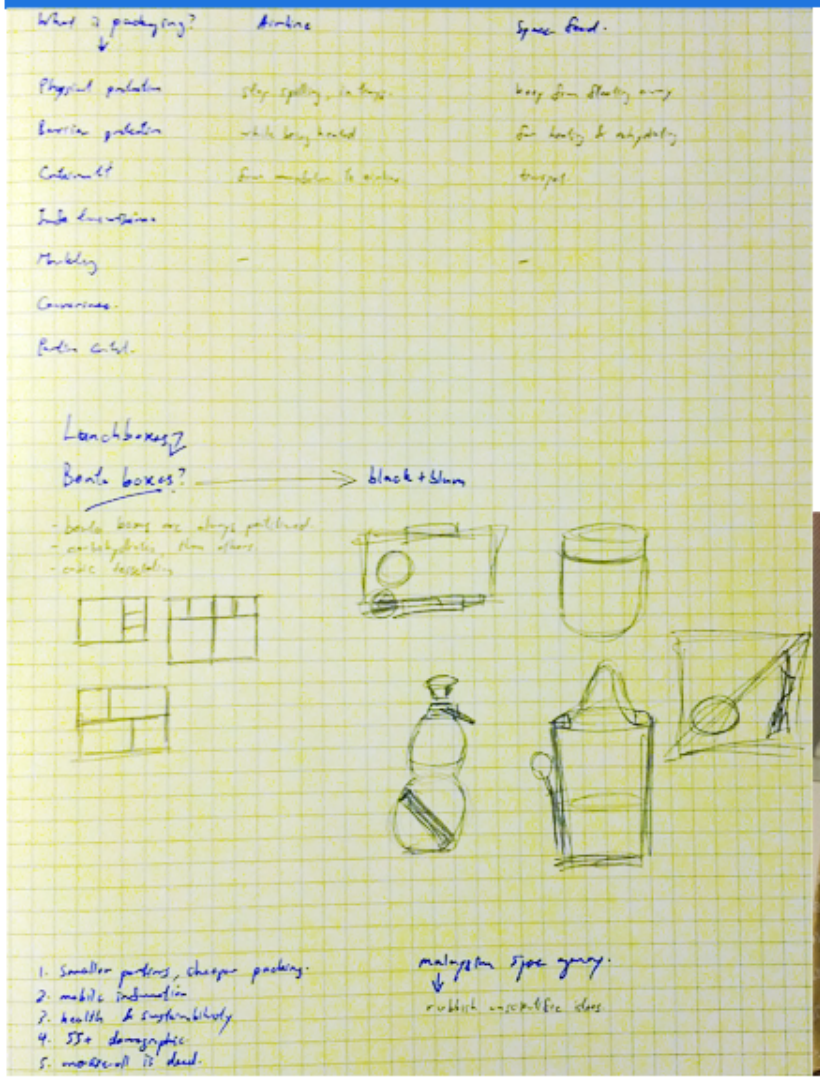

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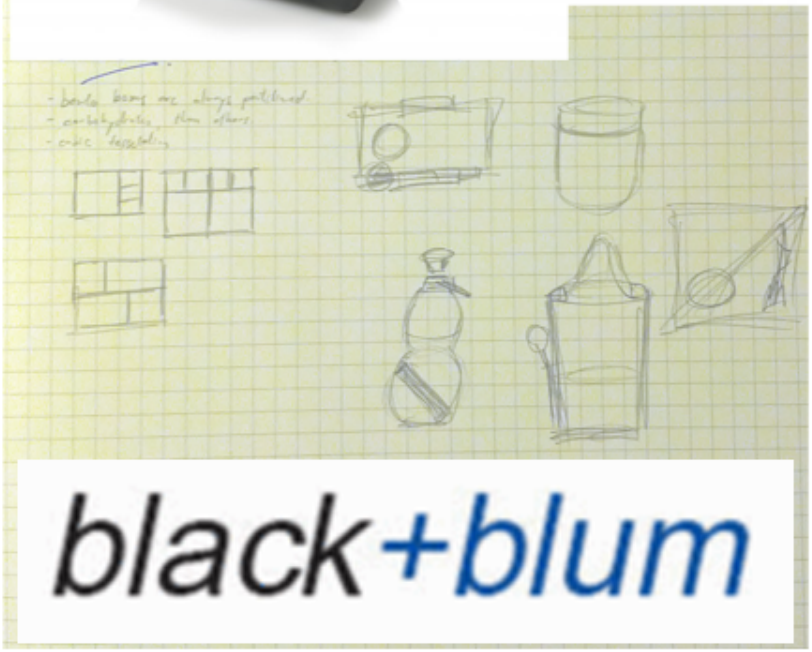
black+blum

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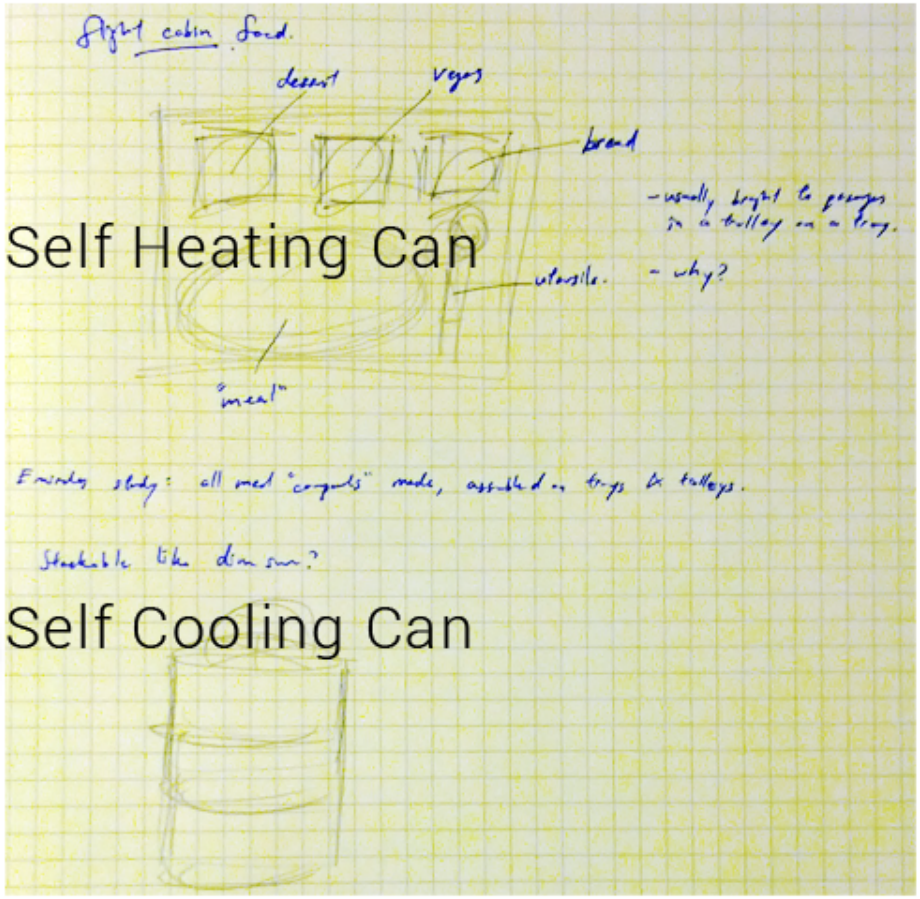
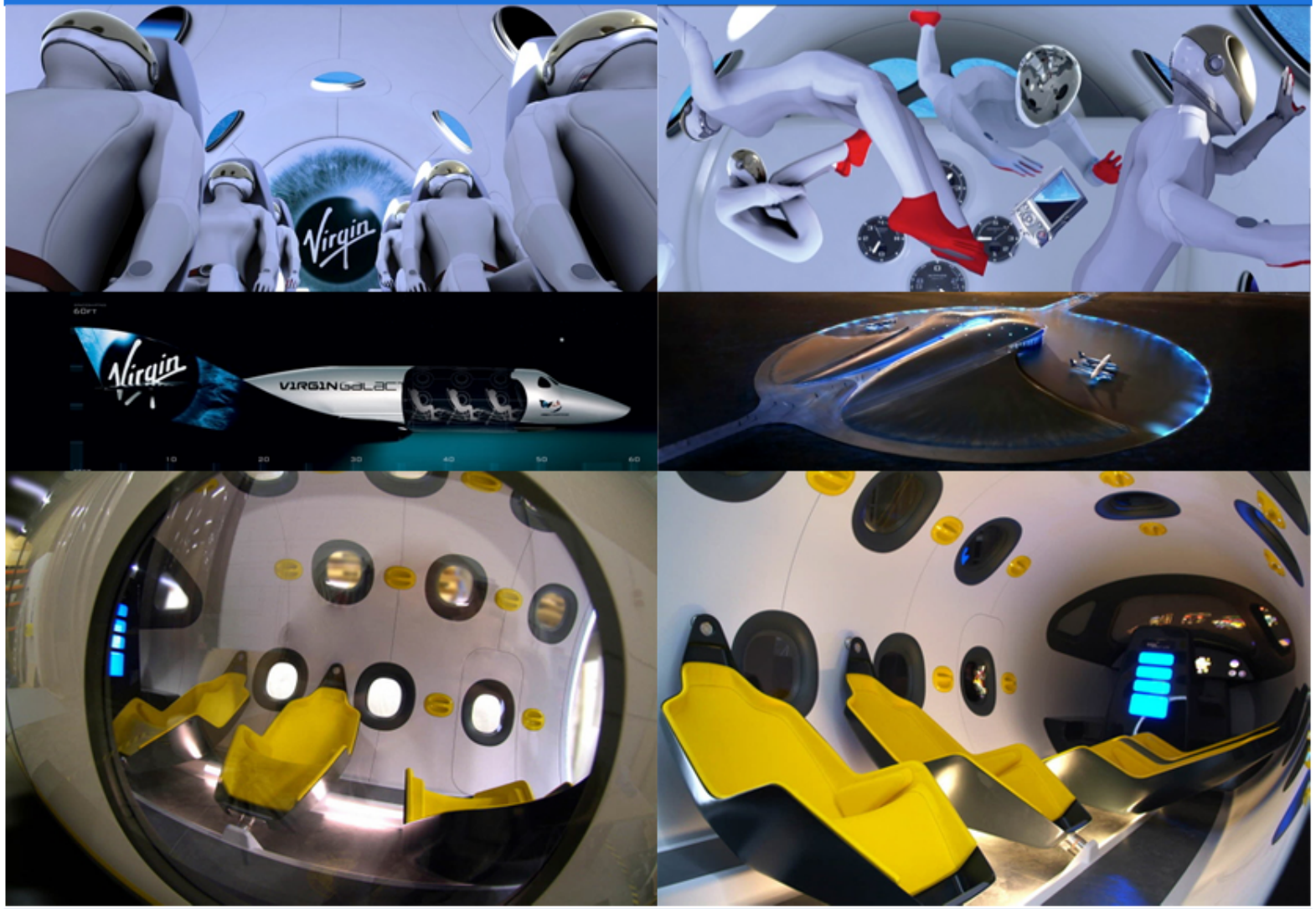
Self Heating Can



Self Cooling Can



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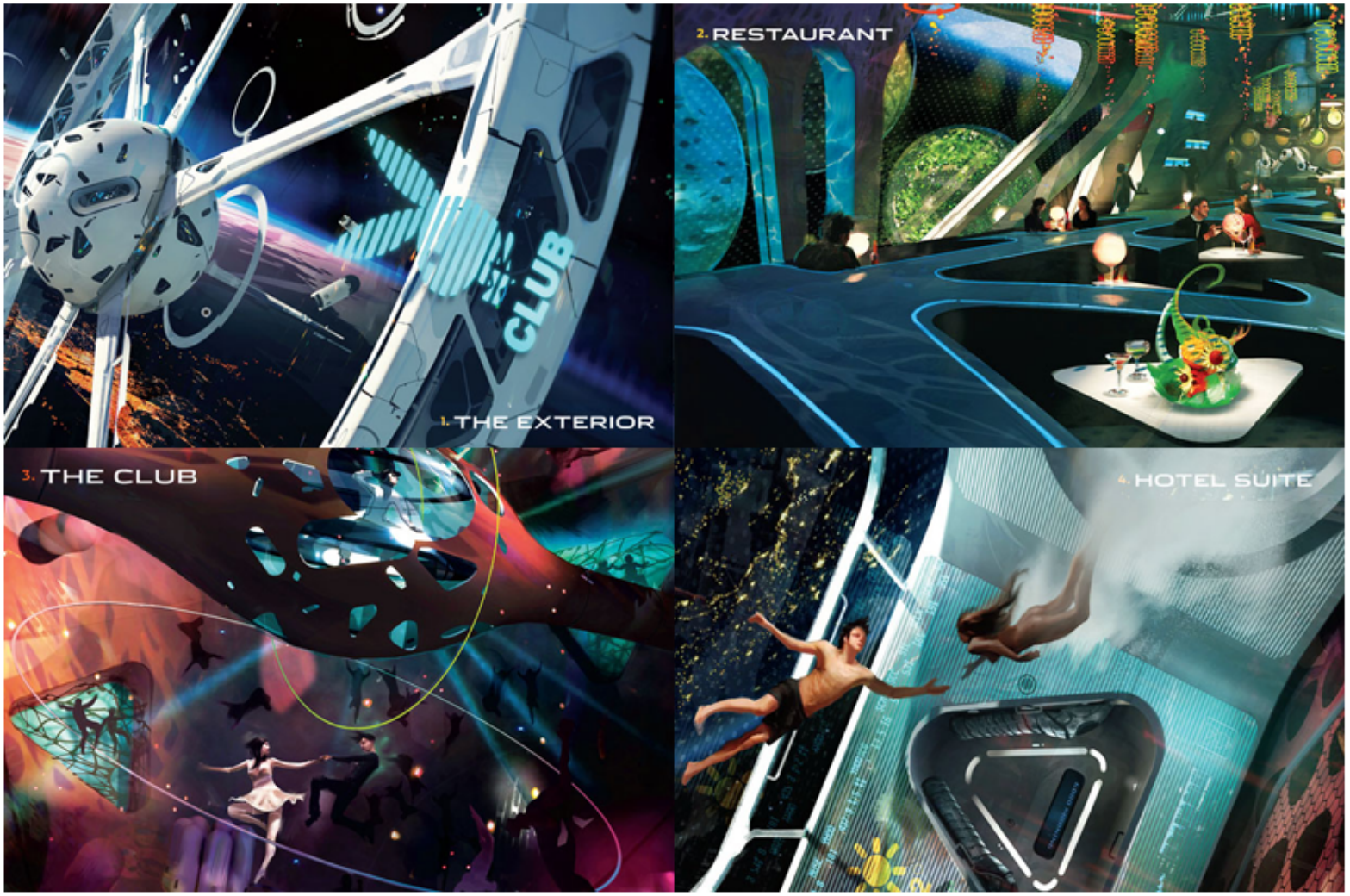

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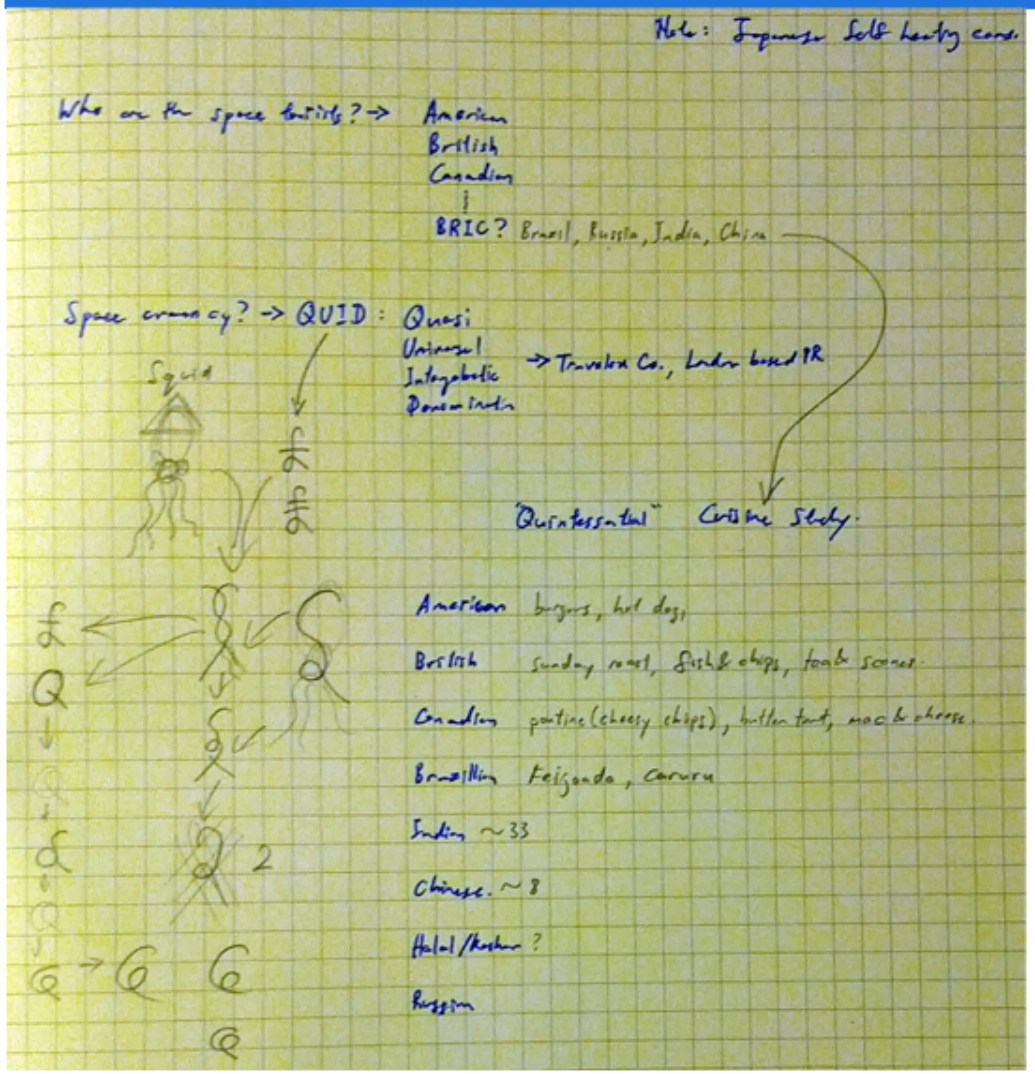
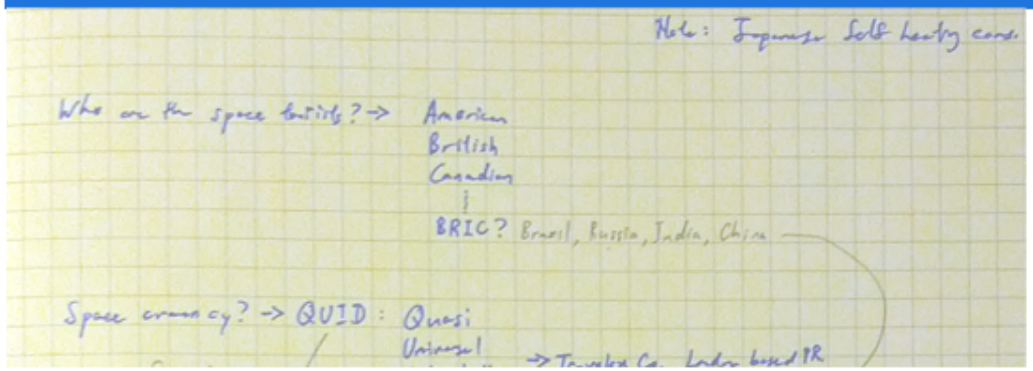
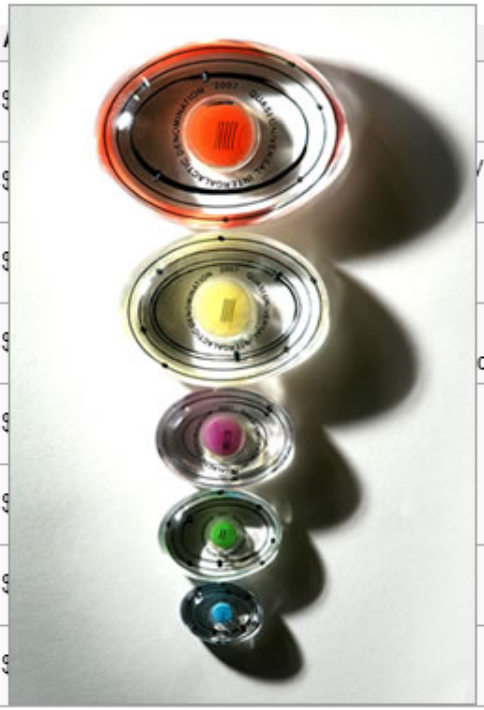

Note: Japanese Self-heating cans.
Who are the space tourists? -> American
British
Canadian
BRIC? Brazil, Russia, India, China
Space currency? -> QUID: Quasi
Universal
Intergalactic
Denomination
-> Travelex Co., London based FX
Squid
"Quintessential" Cuisine Study.
American burgers, hot dogs
British Sunday roast, fish & chips, toad in the hole
Canadian poutine (cheesy chips), butter tart, maple cheese.
Brazilian feijoada, caruru
Indian ~33
Chinese. ~8
Halal/Kosher?
Russian



Space tourist	Nationality	Year	Duration of flight	Flight	Amount paid (USD)	Source of Wealth
1. Dennis Tito	American	2001	8 days (Apr 28 – May 6)	Launch: Soyuz TM-32 Return: Soyuz TM-31	$20 million[22]	Investment management (Wilshire Associates)
2. Mark Shuttleworth	South African / British	2002	11 days (Apr 25 – May 5)	Launch: Soyuz TM-34 Return: Soyuz TM-33	$20 million[23]	Software - internet security (Thawte)
3. Gregory Olsen	American	2005	11 days (Oct 1 – 11)	Launch: Soyuz TMA-7 Return: Soyuz TMA-6	$20 million[24]	Optoelectronic sensors (Sensors Unlimited Inc.)
4. Anousheh Ansari	Iranian / American	2006	12 days (Sept 18 – 29)	Launch: Soyuz TMA-9 Return: Soyuz TMA-8	$20 million[25]	Telecom (Telecom Technologies, Inc.)
5. Charles Simonyi[26]	Hungarian / American	2007	15 days (Apr 7 – 21)	Launch: Soyuz TMA-10 Return: Soyuz TMA-9	$25 million[27]	Software (Microsoft Office)
		2009	14 days (Mar 26 – Apr 8)	Launch: Soyuz TMA-14 Return: Soyuz TMA-13	$35 million[27]	
6. Richard Garriott[28]	American / British	2008	12 days (Oct 12 – 23)	Launch: Soyuz TMA-13 Return: Soyuz TMA-12	$30 million[29]	Software gaming (Origin Systems)
7. Guy Laliberté	Canadian	2009	11 days (Sept 30 – Oct 11)	Launch: Soyuz TMA-16 Return: Soyuz TMA-14	$40 million[30]	Performance art (Cirque du Soleil)

Foreign exchange specialist Travelex today unveiled a unit of currency that has been created for use in space. It is the first currency of its kind in the universe and has been developed in partnership with a team of scientists from the National Space Centre and the University of Leicester. With Virgin Galactic making its maiden voyage in 2009 and with the signing in April this year of the Global Exploration Initiative, an agreement between the US and the UK to work together on future planetary explorations to the Moon and beyond, Space Tourism is soon to become commonplace. Recognising that tourists could soon be heading further than Spain and Greece Travelex has teamed up with the National Space Centre to create the Quasi Universal Intergalactic Denomination or QUID. The QUID has been designed to withstand the stresses of space travel and the extreme environment found in orbit around the Earth. It has also been created so that it can be purchased on earth in any one of the 176 currencies used around the globe.



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American
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Indian
Halal/Kosher
Vegetarian/Vegan

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Canadian
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Brazilian
Indian
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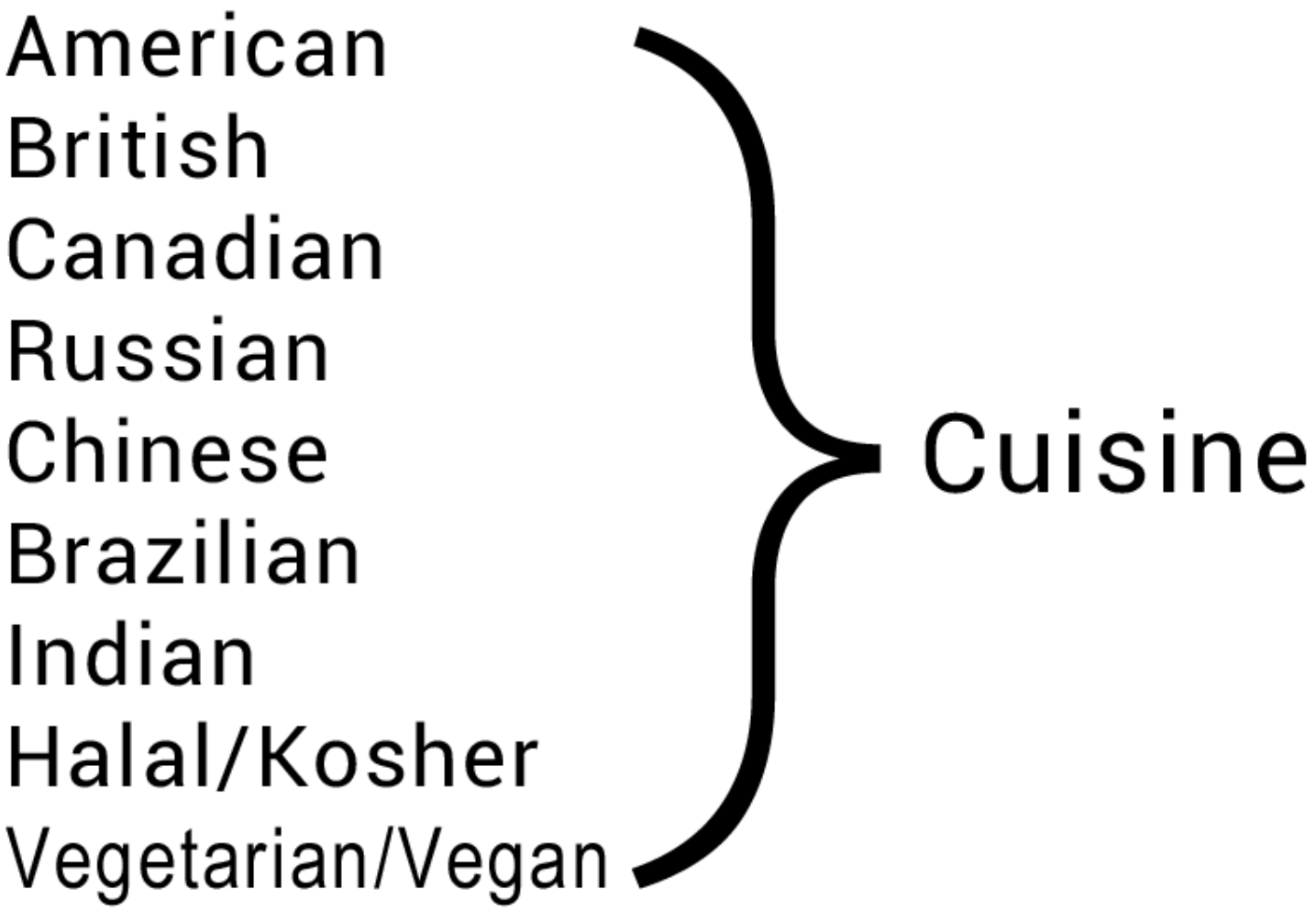
Vegetarian/Vegan


American
British
Canadian
Russian
Chinese
Brazilian
Indian
Halal/Kosher
Vegetarian/Vegan
Cuisine

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Food of the Apollo 11 Lunar Landing

July 16, 2009, 12:00 pm 11 Comments

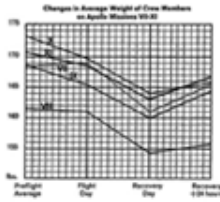
Figure 1. Apollo rehydratable food packages

Apollo rehydratable food packaging. Via hsfa.jsc.nasa.gov

The Apollo 11 flight is remembered as a giant leap for mankind, a moment when the world came together to watch Buzz Aldrin and Neil Armstrong hop, skip, and jump across the lunar surface. But the glamour and excitement of the moon landing overshadowed the more menial aspects of the eight-day flight mission surrounded it, days filled with NASA-mandated rest periods, science experiments, and, of course, eating. The food aboard Apollo 11 represented the height of late 1960s technology, as much as the Lunar Landing Module or the spacesuits worn on moonwalks. Tubes of apple sauce and stew were ditched for meals that could be heated by the astronauts an eaten with real silverware.

The Apollo crew even dined on thermo-stabilized cheddar cheese spread and hot dog during the moon mission, bringing at least a bit of America in July to the sterile flight craft. And yes, there was bacon -- foreshadowing the current bacon craze, the first mea eaten by man on the moon was none other than bacon cubes, coated with gelatin to combat crumbs.

Apollo 11 food had to satisfy some major requirements we never have to worry about here on Earth. Pre-flight body weight had to be maintained, something that had proved mysteriously difficult on previous missions. The graph, right from the Autumn 1969 edition (paid article) of the journal *Nutrition Today*, illustrates the dramatic weight loss suffered by Apollo astronauts.

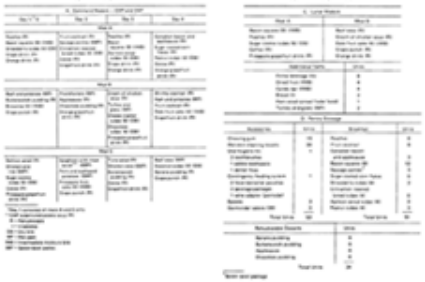


After crunching the numbers back home, NASA revealed that Buzz Aldrin had expended 300 calories an hour on the moon, an amount akin to an hour of light yard work or running after the kids. Not enough to worry about a severe weight loss, but add that amount to the stress and tension of being in space, and it's a small wonder that a main concern of dietary scientists was ensuring calorie-laden dinners.

Apollo 11 meal pack and menu

Figure 5. Apollo meal pack.

Apollo 11 meal pack. Photo via history.nasa.gov



Apollo 11 Menu. View larger. Via hsfa.jsc.nasa.gov

Requirements

Of course, these miracle meals had to be lightweight, compact, and edible in zero gravity. This last point was essential: hamburger buns are still banned on space flights because of the crumb casualties that might result (which is why tortillas are so popular aboard the International Space Station). Until very recently, all drinks had to be sucked out of straws. Even the smallest drop of tomato juice had to be caught, in case it interfered with the craft in some way.

Another less obvious problem with space food was what to do with it once served its purpose and left the astronauts' bodies. The pleasant euphemism NASA created for this is "low residue." The other unpleasant fact is that in-flight nausea and other "undesirable physiological responses" during earlier Apollo missions had been attributed to food. There's nothing worse in a cramped, stuffy space cabin than a fellow astronaut with "enhanced gastric awareness."

To combat some of these difficulties, NASA scientists employed the "wet pack" food technology developed on Apollo 8. A wet pack allowed thermo-stabilized food to retain its moisture content, thereby saving astronauts valuable food prep time. It also allowed them to see and smell what they were eating, rendering Beef and Potatoes a bit more appetizing.

The spoon-bowl packet

Apollo 11 Beef with vegetables in the spoon-bowl package, before and after rehydration. View larger. Photo via nasm.si.edu

Figure 19. - Rehydratable-food spoon-bowl package with water dispenser inserted in the rehydration valve.

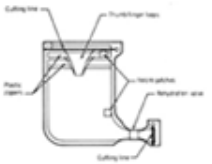


Figure 20. - Rehydratable-food spoon-bowl package.

Spoon-bowl packaging schematics. Via history.nasa.gov (pdf)

A major improvement in food technology from the Apollo 11 mission was the spoon-bowl packet, allowing for food to be rehydrated and warmed in a pouch, which was then opened with a plastic zipper and eaten with a spoon. The moisture in the food made it cling to the spoon, even in a reduced-gravity environment. Sausage Patties, Pork With Scalloped Potatoes, and Chicken Stew were some of the delicacies packed in spoon-bowls and enjoyed by our guys in space during the Apollo 11 mission.

Beverages

Some of the most telling details about space appetites on Apollo 11 come from the beverage side of things. For the first time, coffee was brought up for the astronauts: fifteen cups for each man, with Aldrin requesting black, Michael Collins with sugar, and Neil Armstrong's light and sweet. Oddly enough, Tang, the orange-flavored drink powder associated so closely with the early space program, was not aboard Apollo 11.

In *First Man: The Life of Neil A. Armstrong*, by James R Hansen, Adlrin said, "I can't speak for the other flights, but before ours, the three of us dutifully sampled the orange drink and instead chose an orange-grapefruit mixture as our citrus drink." Also MIA was that staple of science museum gift shops, astronaut ice cream. The astronauts settled instead on desserts like bite-sized brownies and pineapple cake.

But how did the food taste?

Apollo 11 Peaches (left), Chocolate pudding (right). View larger. Photo via nasm.si.edu

All of this spoon-bowl and wet pack talk leads us to ask the question, "How did it taste?" There's surprisingly little data about that. Dr. Malcolm Smith, the Chief of Food and Nutrition at NASA for the Apollo 11 flight, reported in the Autumn 1969 edition of *Nutrition Today* (paid article) that astronauts Armstrong, Aldrin, and Collins "enjoyed the food we had put aboard. The variety was satisfactory, and there was enough to satisfy their hunger and maintain their performance."

Buzz Aldrin enjoyed the shrimp cocktail, explaining later that, "The shrimp were chosen one by one to be sure they would be tiny enough to squeeze out of the food packet, and they were delicious!" From *First Man: The Life of Neil A. Armstrong* we learn that Neil Armstrong's favorite meal was spaghetti with meat sauce, scalloped potatoes, fruitcake cubes, and grape punch, a spread that certainly sounds Retro Recipe ready.


The News-Palladium

Twin City Area Highlights

MOON SPACEMEN WON'T EAT GREEN CHEESE

Whirlpool Announces Lunar Fare

The News-Palladium June 30, 1969. View PDF. Echoing the Obama food crisis, newspapers ran article after article about food aboard Apollo 11. Via blogs.nature.com

Conclusion

The 1974 case document (pdf) about Apollo food systems reveals the hard work and care that went into feeding astronauts. Thermo-stabilized hot dogs, packs of dehydrated chicken salad and the like were all the "result of the efforts of a large group of people of diverse backgrounds, interests, and skills." Each person in this group was "caught up in a desire to contribute to a glamourous, adventuresome, and authentic program of space exploration" during the Apollo missions.

Food technology might seem like small space potatoes when compared to the intricacies of rocketry and climate control systems, but the physical and mental well-being of the astronauts, and by extension the success of the mission, depended on details as small as cheddar cheese spread and brownie bites.

—Stephanie Butler

Video: NASA Apollo 11: Chicken Stew: "Delicious"

http://www.eatmedaily.com/2009/07/food-of-the-apollo-11-lunar-landing/

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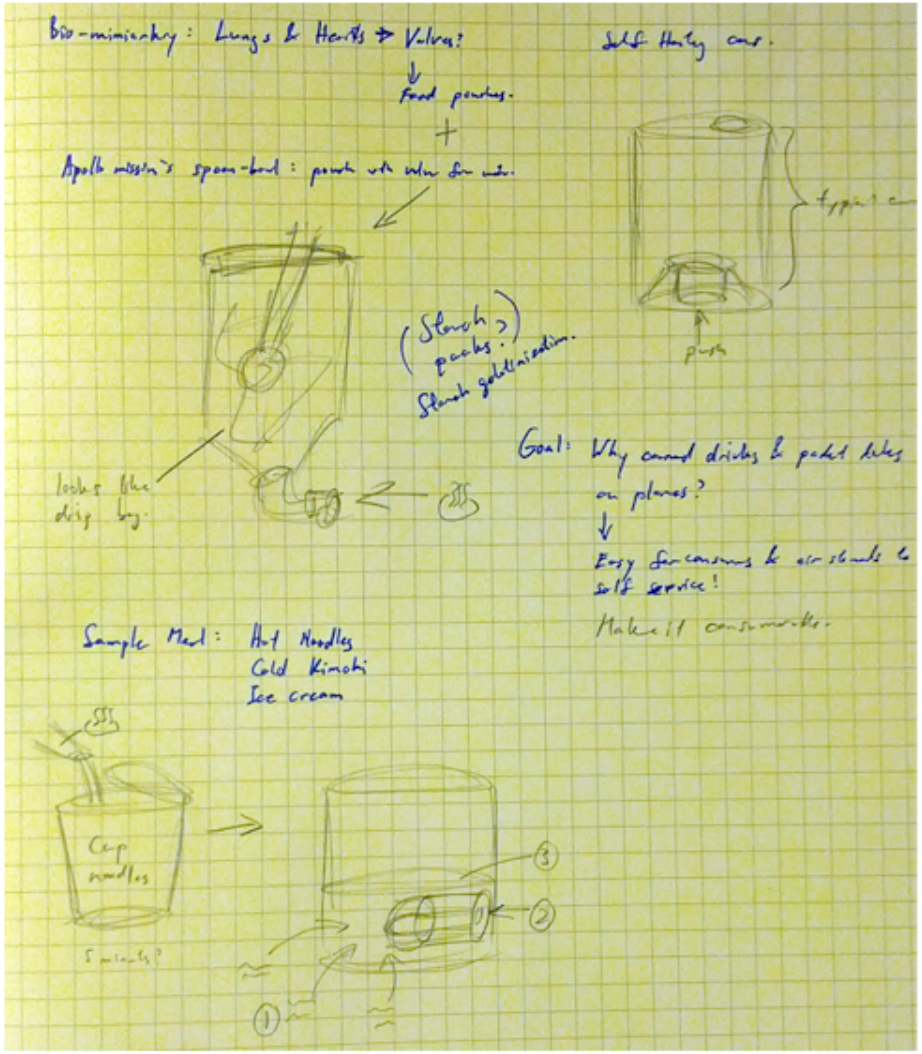

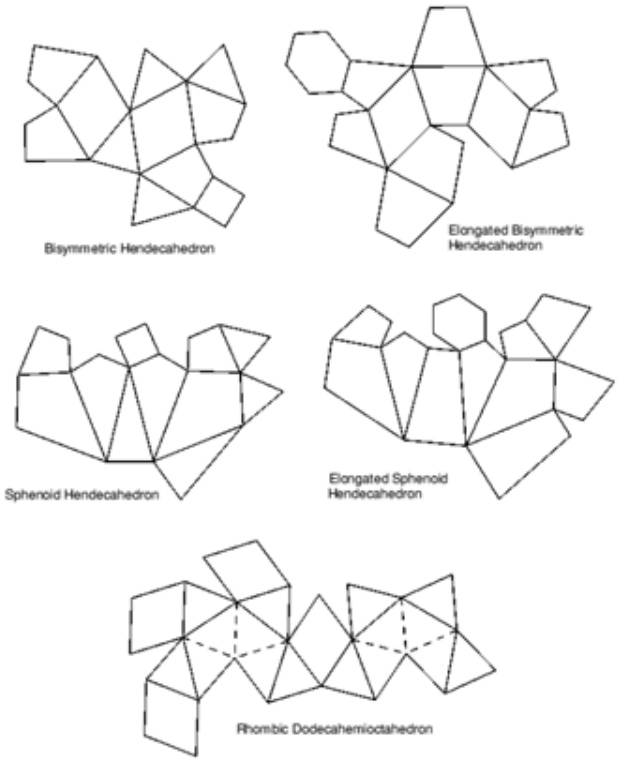

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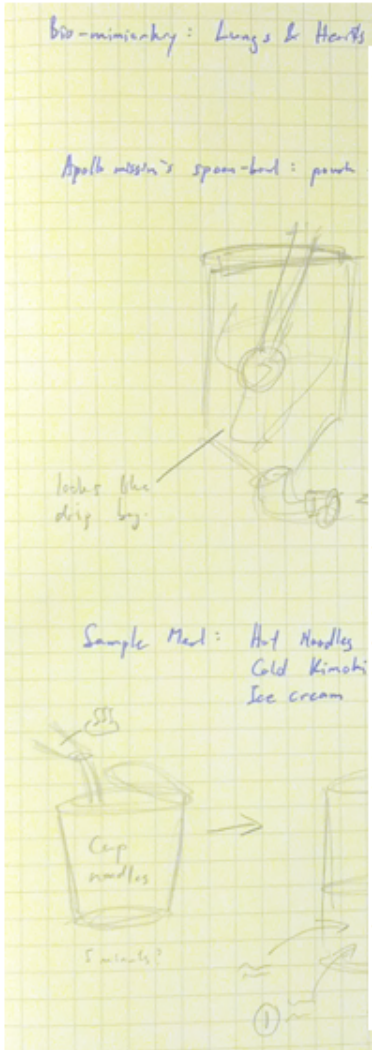


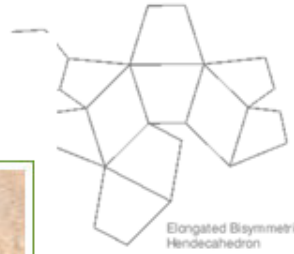
A Self-Filling Water Bottle

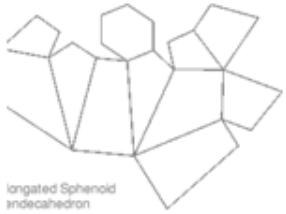
*Written by **Philip Proefrock** on 28/11/12*

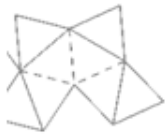
The need for water is important in many parts of the world without the infrastructure to provide safe drinking water. There are many personal technologies that can be used water purification or water gathering. While the idea of a self-filling water bottle may at first sound like magic, it's based on nanotechnology and biomimicry.

NBD Nano is named for the Namib Desert Beetle, whose shell functions to collect water for the insect, and which served as the inspiration for the technology. The technique behind this uses hydrophilic (water retaining) and hydrophobic (water repelling) coatings to concentrate moisture in the air onto the hydrophilic surfaces, and then, as the droplets become big enough, the water runs into a central collector. A small fan is used to move air over the surface to improve collection.

The company is pursuing a variety of possible applications for the technique. While it is not yet a commercial product, this offers a possibility of making water scarcity less of a problem in an increasingly water-dependent world.







What next?