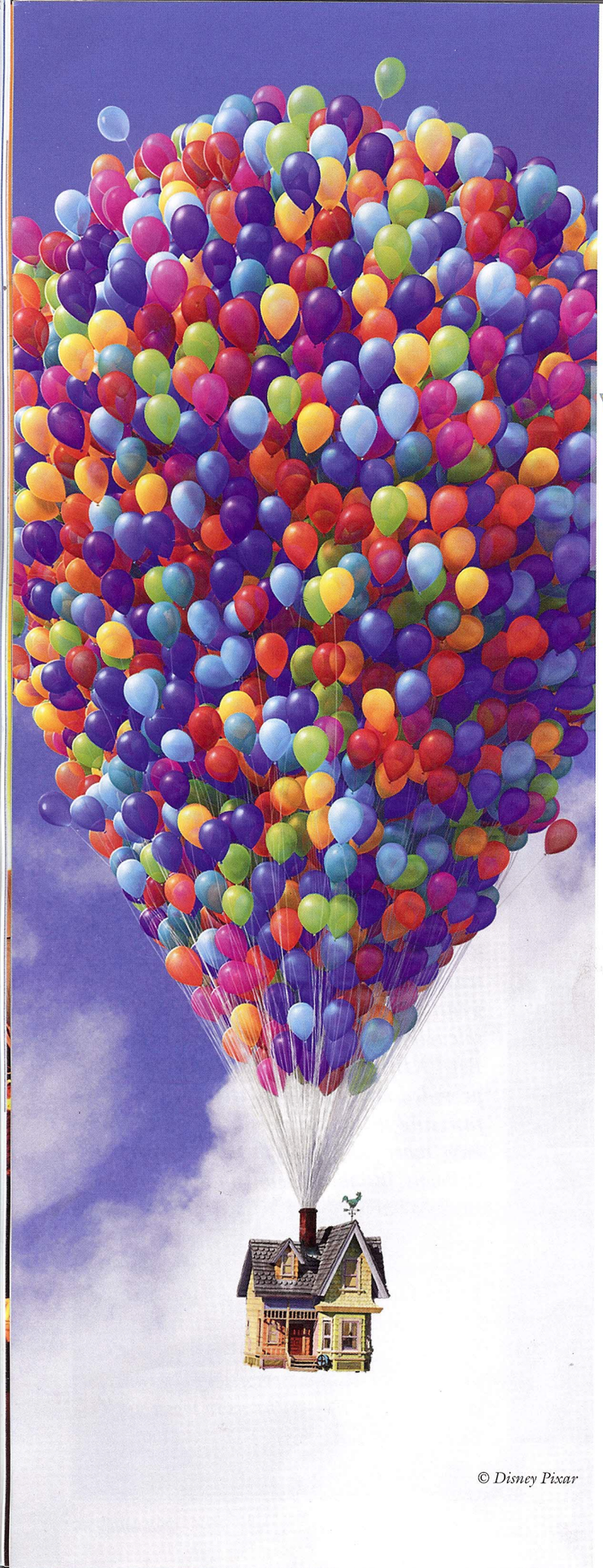

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Fantasy?

National Geographic

You've seen the movie "UP!" and you find yourself wondering, "How hard could it be to fly a house?" Troy Bradley and Jonathan Trappe now know the answer. Their unique flight is one of several engineering feats to be featured this Fall on the National Geographic Channel.

According to Jenny Apostol, Executive Producer for the National Geographic Channel's new series, the program titled "How Hard Can It Be?" is an original science and engineering series dreamed up by Darlow Smithson Productions, a UK-based production company. With a global premier in September, three episodes are currently in production (with more on the way), including one featuring a flying house fashioned after the cluster craft in the Disney Pixar production, "Up!"

To explore the feasibility of the stunt, Darlow and National Geographic reached out to balloonists Troy Bradley and Jonathan Trappe. The pair had set an event duration record for a 68.8 hour flight at the 2008 America's Challenge Gas Race. Bradley and Trappe provided NatGeo the necessary consultation for design, equipment, airspace, certification and ultimately piloting the ungainly flying house. National Geographic proposed to fly only a few feet on a tether, but Bradley and Trappe delivered much more than expected.

On March 5, 2011, under the direction of National Geographic Channel, they launched from Brian Ranch Airport, which specializes in ultralight and light sport aircraft. Located in Llano, CA, Brian Ranch is 40 miles north of Los Angeles in southern California's high desert. Bradley and Trappe succeeded in taking the house on an hour-long, tether-free flight, 10,500 feet MSL, using a cluster of helium balloons and trailing an entourage of engineers, volunteers, chase vehicles, and curiosity seekers.

Because "How Hard Can It Be?" is a reality show, the engineer hosts were purposely distanced from Trappe and Bradley's behind-the-scenes planning. The producers want the show to be as spontaneous and real as possible, so the pilots had little prior interaction with the "host engineers," and worked many details out, literally behind the scenes.

"Our talent have to design, build and pull off their challenges in a couple of weeks each," Apostol said. She explained that this challenge is central to all episodes of "How Hard Can It Be?" According to Apostol, each show will focus on the extreme challenges of a unique engineering project.

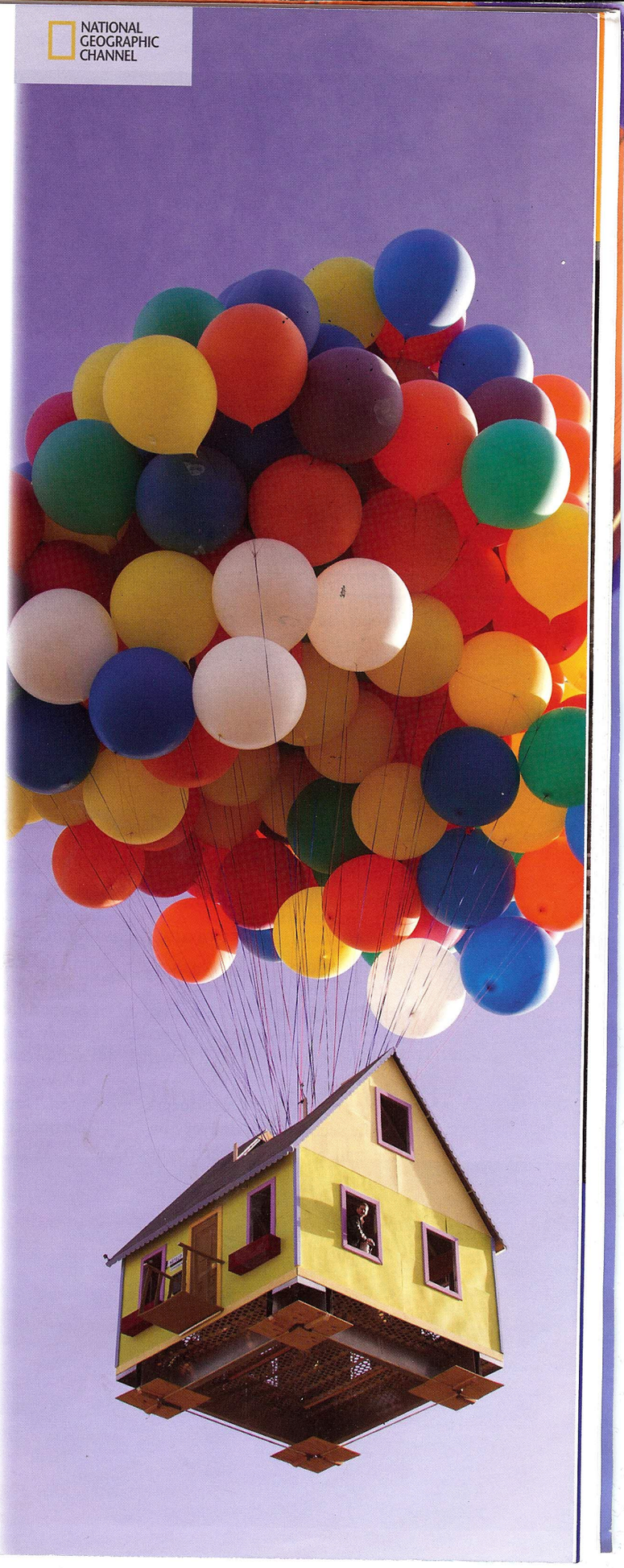
"To keep the television fresh, they didn't tell the hosts what we were up to, and let them solve as many problems

Reality!

Channel asks...

"How Hard Can It Be?"

Story by Leslie Deane
Photos © National Geographic Channel / Stewart Volland



on-camera as possible," Trappe explained. But he added that a number of flying details were necessarily worked out well before construction began, such as experimental aircraft certification and pilot safety issues.

"I really do want our ballooning colleagues to understand that this wasn't a spur of the moment thing, or thrown together in two weeks. We spent months working on the design, equipment, airspace, certification, and so many more things," Trappe said.

The original communication from National Geographic Channel suggested they didn't expect to actually fly the house, and considered simply lifting it a few feet to be a "massive achievement." But then the producers connected with Trappe and Bradley, and the idea took flight.

"To me, the cluster has always been something of a novelty, and obviously flying this large of a payload would test all the principles and ideas about cluster balloons," Bradley said.

"I was very interested when I first heard about the project," Bradley said. "It's even better when someone else is paying for the gas, which is very expensive."

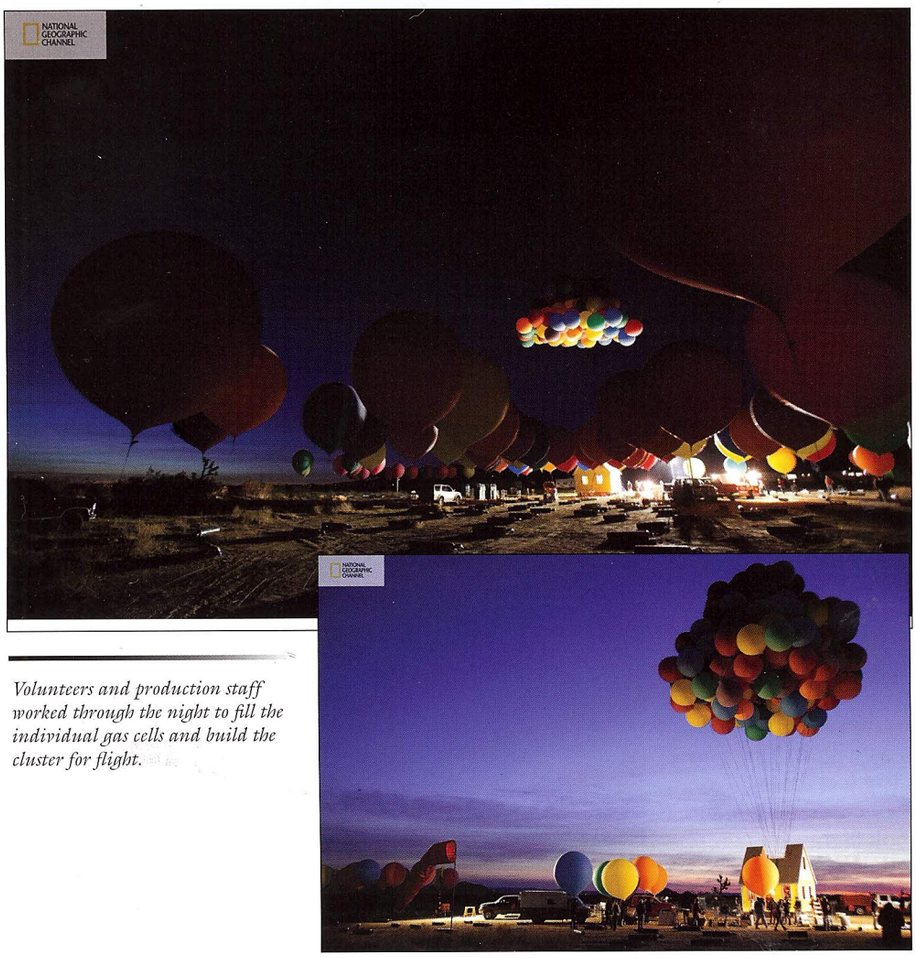
"I cautioned the producers about the expense and suggested we needed to wait until they had secured the financing for it. When they said they were filming for National Geographic, I knew they weren't 'fly-by-night,'" Bradley explained.

They indicated that they were also talking to Trappe, and asked Bradley if he would mind collaborating with him in the project. "I taught Jonathan to fly gas balloons," Bradley said. "So I was glad to work with him on the project. He's very well organized and enthusiastic about cluster ballooning. I thought we made a good match."

"Around the end of last year we heard that the project was on and the timing on the project was less than two months once we got the green light," he continued. "Even though we had discussed it a lot before hand, Jonathan and I were both concerned whether we could put it together in that amount of time."

"The truth is, it isn't rocket science," Bradley said. "Suspending a load safely was what it was all about, so even though I don't have an engineering degree, I had a good idea what would be needed."

While direction of the project was clearly in the hands of National Geographic Channel, Bradley said "We really had significant input in how it was built," he explained. "They came up with the materials to make it lightweight and sturdy



Volunteers and production staff worked through the night to fill the individual gas cells and build the cluster for flight.

enough. I was very impressed with what they came up with in several hour-long phone calls.

"They listened to how we thought things should be connected to distribute the load. Neither Jonathan nor I are engineers, but we have a lot of practical experience, and they used it well," Bradley said.

For example, the producers initially secured fuel delivery by tube trailer, but since each balloon in the cluster needed to be filled equally, using a tube trailer would make it too difficult. Bradley and Trappe convinced them to change to a cylinder system.

Of particular concern was the load ring.

"What we ended up using was a Wörner load ring, and the engineering team performed a hang test on it using the floor of the house loaded with 5,000 lbs of ballast," Bradley explained.

The 256 square foot house would weigh 1500 lbs, carry 1700 lbs of ballast, 600 lbs of pilots and gear, 535 lbs of rigging including the balloons and load ring, for 4335 lbs total weight of this "experimental aircraft." Trappe and Brady designed the cluster rigging and provided the piloting to assure FAA clearance for the flight. They used Trappe's experimental aircraft certificate.

With the myriad flight details worked out, the production team then filmed the episode in less than three weeks. Bradley said they couldn't have pulled it off without the many volunteers who assisted with weather, fueling, chasing and other launch and recovery activities.

"There are too many to name, but they all deserve a big thank you," he said.

"On the launch day, there were approximately 35 volunteers to help assemble the house and fill balloons," Apostol said. Included in those 35 were 15 students from CalPoly who helped design creative elements on the exterior of the house. She said the team conducted extensive risk assessments, too.

"Volunteers stayed up all night filling the cluster balloons," said Felice Apodaca, who owns Brian Ranch Airport along with her husband, Jack Brian.

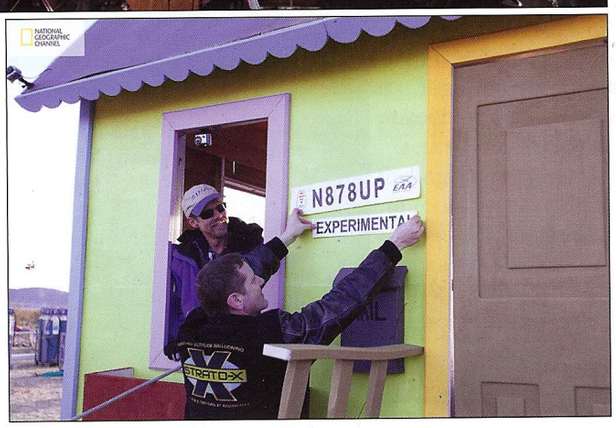
"It was very exciting to wake up to such a tremendous sight. Our pilots were grounded for about 2 hours for the shoot, but no one minded because we were all so caught up in the adventure. Once the balloons and the photo helicopter left the airport vicinity, our pilots took off in their airplanes. They were able to see the landing from above," she said.

Trappe said that it took both pilots to fly the system, which was adjusted several times as the project proceeded. For example, the size of the house was altered so it could fit on roads, which raised the load ring out of reach. They had to build a platform in the middle of the house so that Trappe could reach the load ring and cut the clusters loose to land. Positioned this way, he was no longer able to see out the windows and spot power lines, so in addition to managing ballast, spotting hazards became Bradley's job.

"I wanted to be controlling the flight, watching for obstacles and trajectory coming in and be the person to bail us out if we needed to abort the flight," Bradley said. "One of the things we requested early on was good visibility. There were two windows on each side and the floor was perforated aluminum with 2" diameter holes so visibility was very good. And I could dump ballast out the floor, not just out the windows," he said. As they came closer to landing, Bradley said he flew more by feel than instrumentation.

Considering the possibility of a rough landing, Trappe was actually lashed to the load ring webbing so he could continue venting and minimize drag on landing.

"I had a harness on, and if we had a tip-over landing, I'd still be



Top: The view through the roof.

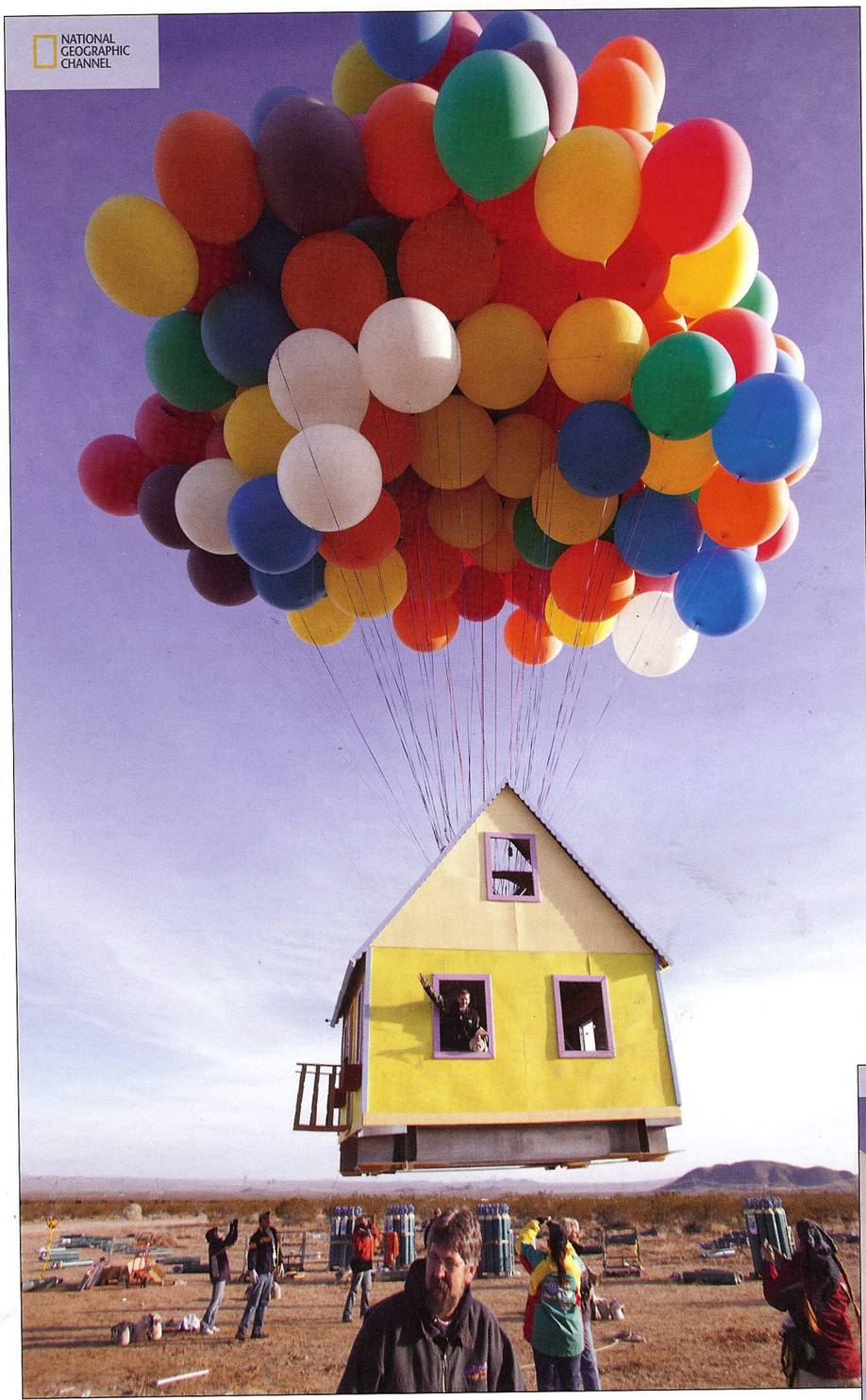
Center: The interior furnishings were a tad spartan. For landing Trappe was strapped to the center structure surrounding the load ring while Bradley eyeballed the landing site out the window and through the floor.

Bottom: Bradley (in widow) and Trappe make final preparations before launch.

connected to the load ring," he described. "I practiced, and the balloons were always within reach, even if I got knocked off my feet, I couldn't get knocked away," he said. He used EMT shears to cut balloon clusters away. A skydiving hook knife was also attached to the load ring as a back up.

During landing, Trappe stood in the middle of the ring, which was about chest level. "Landing was an experience!" he said.

"Troy and I had agreed in advance that I would do a large 'vent' about 20 feet off the ground. We had gotten a 350 fpm descent going, coming down from 10,500 feet. We were going to round out, and find a field, but we had a great field without having to maneuver a lot," Trappe said. They rode the craft all the way down with Bradley tossing ballast and Trappe cutting clusters off the top of the stack, 21 balloons, three groups of 7, in rapid succession when they were about 5 feet from the ground.



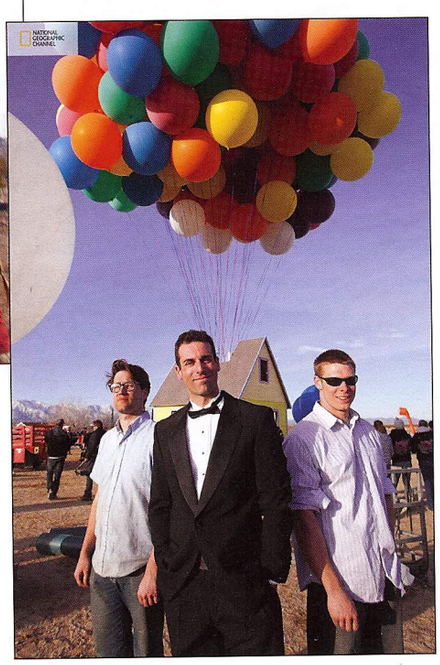
"We wanted to make sure we lost all that lift at one time," Bradley explained.

Trappe said "there was one perfect, solid landing, level on the ground, nearly compass-square and without a hint of bounce or drag."

"One of several chase vehicles immediately arrived at the landing site, followed by a couple of curious Highway Patrolmen and about 75 onlookers," Bradley added.

Bradley, who has more than 5300 hours in balloons, said it isn't the most unusual flight he has had, but it is the most memorable. "Such an unusual gondola – a remarkable flight. I've probably done more incredible flying from a physics and personal standpoint, but from the uniqueness of the aircraft, this is the most remarkable flight without a doubt."

He said that the person who lived in the house closest to the landing site came over to welcome them to the neighborhood. It seems in the high desert of California, they're fine with neighbors who "just drop in."



Above: Liftoff and Success! What the artists at Disney Pixar only dreamed of, the engineers of NatGeo's "How Hard Can It Be?" proved possible (with help from BFA members Troy Bradley and Jonathan Trappe). The flight achieved an altitude of over 10,000 feet, lasted about an hour and landed without incident.

Right: Tune in and you'll meet the hosts of the show (l - r) Paul Carson, Vin Marshall, and Eric Gocke.

(For airdates and additional information about the upcoming series, "How Hard Can It Be?" visit natgeotv.com)