What is it like to live aboard a gas balloon competing in a long-distance race like the Gordon Bennett or the America's Challenge?

Aloft in a Gas Balloon Race

By Peter Cuneo and Barbara Fricke

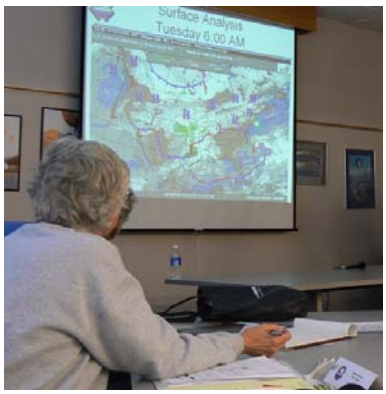
[Editor's note: Barbara Fricke and Peter Cuneo are the editors of the Balloon Federation of America's Gas Division newsletter. They have been flying hot air balloons since 1988 and gas balloons since 1996. This year for the third time, Barbara and Peter will represent the United States in this year's Coupe Gordon Bennett: in their two previous Gordon Bennett races they finished sixth and seventh. They have competed in seven America's Challenge races and won the race in 2001 (they've been runners-up three times, including last year).

Peter and Barbara have shared hundreds of hours aloft, suspended thousands of feet in the air while sharing a space smaller than an average pickup truck bed. And they still like each other. Here is how they do it.]

I. Getting Ready

The preparation for any flight starts weeks or even months beforehand, with an annual inspection of our balloon and all associated electronics: our instruments, radios, transponders, lights, GPS's, and other gear. Should we buy that esoteric and expensive new lightweight gadget that we have been craving to replace its older, heavier cousin? On another level, we'd better remember to register for the race and pay the entry fee!

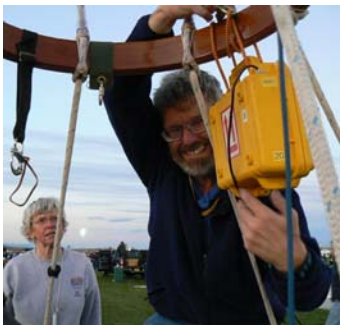
Closer to race time we run down the equipment checklist paring away unnecessary ounces from everything, including the pilots. We begin discussions with our meteorologist about possible flight paths and weather conditions along the route including storm hazards and windless dead zones. Then get ten or fifteen new aviation sectionals (air maps) to cover our potential flight path. Update the GPS electronic data base. Must line up the chase vehicle and chase crew. Get the freeze dried meals and comfort food (Cheez-Its for Peter, trail mix with chocolate for Barbara). We set the same goals as last year for the race: fly safe, (even a bit conservative); stay aloft thru a third night if possible; cross the Mississippi River; and try to finish in the coveted top three for a trophy and a place in the upcoming Gordon Bennett race.



Five days out we charge all the batteries, provision the gondola and load everything into the trailer for later transport to the launch site. On day T-minus-three, along with our hardworking crew, we shovel fifteen hundred pounds of sand into our ballast bags and stash them at Balloon Fiesta Park under a double tarp in case of rain. Try to get two good nights of sleep to be ready but last minute tasks fill up too much time.

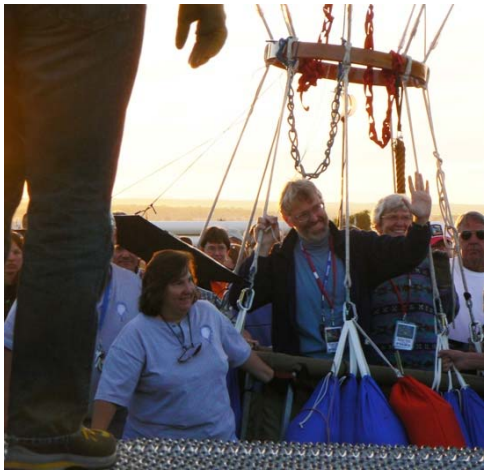
On Friday (T-minus-one) we view the Fiesta safety video, attend the first mandatory briefing for pilots participating in the race, and hear that the weather is not looking good and the launch may be delayed for two days. We draw our launch order number, get a map of the field layout and are given our ham radio

and GPS-based tracker that will send our location in real time to the Balloon Fiesta website all through the race. Lose it or break it and that will cost you $500.


Installing the tracker

II: The Launch

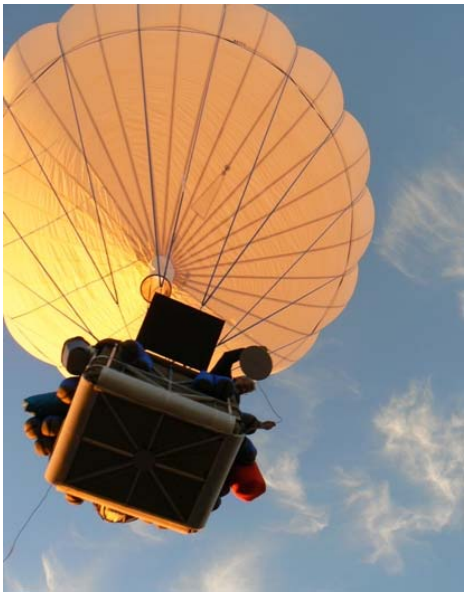
It's the same story at the next day's briefing, but things are beginning to look up: the event meteorologist distributes weather maps that look optimistic for Monday evening. At Monday's briefing we are given the green light to inflate and prepare for launch. The surface winds are mostly cooperative except for a few gusts that come thru at the most inopportune moments. The helium that will keep us aloft throughout the flight is delivered to the field in large tanker trucks. Three balloons inflate from each truck so we coordinate the filling order with the other pilots. There is an air of friendly tension on the field with pilots wishing each other safe, but not necessarily long, flights.



Now we are inflated and awaiting our turn to launch. Just before sunset, our crew "walks" us to the launch platform, the point from which all of the balloons take off so that they start the race from exactly the same place. Friends callout hasty and heartfelt goodbyes, there are handshakes and hugs, the national anthem is played, we are weighed off, one more half bag of sand is sent overboard and finally we are airborne. The emotions are multiple and intense: a great relief at being in the air combined with a feeling of enhanced awareness, a mental listening for any sign of problems with the balloon. During the first hour we deploy our running lights, turn on our transponder, and pour sand overboard (called "ballasting") to gain altitude. We call our meteorologist ('met man' for short) to report we are airborne.

We try to get a feel for how the balloon is flying. Has the valve seated properly? Is there a small gas leak anywhere? As the sun sets and gas cools, the balloon wants to dive towards the ground, much of our sand ballast is used to counteract this effect. We want the balloon to go up, not down and to finally reach its comfortable equilibrium altitude. This requires ballasting large amounts of sand overboard to lighten the system.

We put on several more layers of clothes to ward off the night chill and decide which of us will sleep while the other stands the first watch. We have done this for enough years to know that sleep is crucial and we can usually read each other well enough to quickly determine who will sleep first. We will alternate every two to four hours during the night but know enough to wake the sleeper before any crucial decision is made. Our first day's goal is to be close to the New Mexico/Texas state line before the afternoon thermals kick up in eastern New Mexico and that means being in the higher, faster winds. We use yet more precious ballast to rise while worrying that this may force us to land after only two nights. Winning this race usually requires flying through a third night.



By about 1:00 AM, the balloon is flying level on its own in the cold air, the coyotes are howling and the moon is lighting the diorama that is rolling away beneath us. We plot our position hourly and find that we are not making the required distance to get to the state line as

desired. We call our chase crew and tell them to grab a hotel room in Santa Rosa. We will call them again in the morning.

The pilot is tired and doubting the wisdom of our decision to go high . . . or . . . should we be higher? Things are not going as planned and we are sure that all the other teams have a better strategy. It is time to hand things over and crawl into the communal sleeping bag for some much needed sleep. We are flying high enough to be on oxygen and changing places involves a modified maypole dance to keep the hoses from snarling. Peter awakes three hours later to find that Barbara has miraculously found some faster winds in a good direction. She has talked to our ever encouraging met man and chief strategist. He says we are doing fine, but might want to look for a wind that is just a bit more northerly. We're in the middle of the pack and the next day should be interesting.

III: The Race

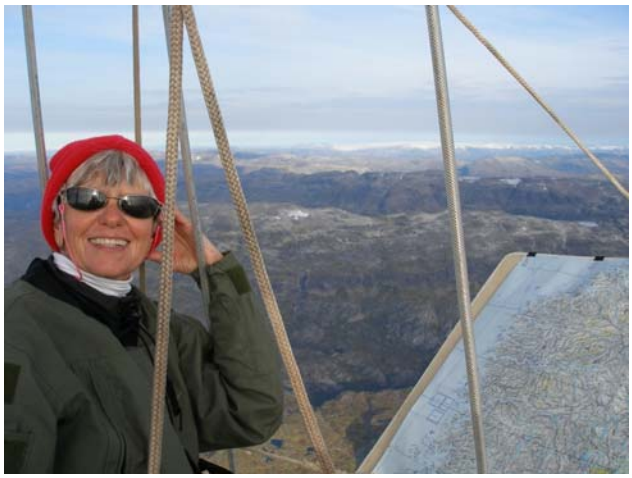
The first light before sunrise has an incredible rejuvenating effect on both of us. As the sun crests the horizon and starts to heat both the air and the balloon we decide to let natural solar heating take the balloon up so we can hunt for that elusive northerly wind. We turn off the nighttime running lights; deploy the solar panel and heat water for hot chocolate and instant oatmeal. We count sandbags and find we have eleven full bags still available. This could be just enough for two more nights if we are frugal and don't run into any thermals or airspace issues.

Our downwind track for the rest of the day seems to be clear of any major airports of other restricted airspace. Wind speeds are predicted to be in the 20 to 30 knot range at our altitude so we should add significantly to our "distance made good" today. Distance is the factor that determines this race's winner. It is the great circle distance from takeoff to landing, regardless of the route taken.

By midmorning the sun has grown hot and we put up the sunshade to cover most of the sky while still giving us a small open window to observe the ground. The balloon slowly rotates as if it is under the control of some giant but invisible hand. This makes our window alternately point first forward and then backward. Our frame of reference is the basket floor we are standing on so every time we look out the window, we must first determine if we are looking at ground that we are approaching or have already flown over. This can be very disorienting to our attempts at visual navigation, and doubly so at night.

By mid afternoon, we are feeling good that we have not had to ballast all morning. Ballast equals time – and the less ballast we use, the longer we can stay aloft. But we are still near the Texas/New Mexico boarder and are worrying about thermal activity that could create strong updrafts and downdrafts. We maintain our altitude with the hope that any such activity will be happening mostly near the ground. We alternate lying on the cot, trying to sleep for a few hours to be ready for the night.

By late afternoon, the sun is dropping toward the horizon and our balloon's gas is starting to cool and contract. From now until several hours after sunset, slow and steady ballasting will be required to maintain level flight. We prepare for the second night by connecting the running lights to the batteries and disconnecting the solar panel. Again, we don our cold weather clothing and share a freeze dried meal, heated over a small cook stove. For Peter, the second night always seems the longest. We are tired but not yet approaching the finish as we will be on the third night. We also have more time to anticipate the coming cold and dark. There is no special adrenalin flow this evening as we had the prior night at launch time.



The second day is a lot like the first day. Find time to sleep, or rest, when you are not flying. Remember to eat. Since space in the gondola is so restricted and we can't move around much, we don't burn much energy and so we don't get very hungry. Talk about what altitude to fly at, what strategy to use to try to get more distance. Talk to the met man, and to the crew to see how they are doing and to let them know there you think you will be. For us, it seems our met man can tell the crew where we will be better than we can. The main issue on the second day, is do we have enough ballast to make it through one more night? Do we need to stay aloft one more night to do well in the race? Where will we be the next morning? And will we be able to land in the morning or need to fly during the day to find landing spot? It is a go for the third night.

The third night starts well. We have picked up speed and are heading in a more northeasterly direction. The balloon is flying level and the air seems stable. It seems colder than the first two nights. We discuss dropping lower to look for the holy grail of gas ballooning…the low level nocturnal jet that can propel a balloon forward at more than fifty knots just a thousand feet above the ground. We decide to let the balloon drop naturally to conserve ballast and allow us to find out what may be happening lower. However if our speed or direction changes for the worse, we will ballast and rise again. In the early morning hours the wind speed slows, but we have noticed this on prior flights and it is not unexpected.

IV: Back to Reality

By the third day a form of mental and physical isolation is setting in. It is a removal from the world on the ground almost like solitary confinement. No newspaper, so no current news, no work related issues and no phone calls from anyone other than our weatherman. What is happening in the baseball playoffs? We could ask for a news brief from met man but it doesn't really seem important and would distract from our more important discussions about the weather. Our world is how much ballast we have left, where we will land and what the weather conditions will be as we descend.

It looks as if we will be in fairly uncharted territory,with some humidity and possible low level clouds. But the winds should be moderate to light. The trick will be navigating to an open spot within a reasonable distance of a road for retrieval. We contact our chase crew and brief them on our target zone and estimated time for landing. We stow loose gear, put on helmets, gloves and warm clothing, but this time the clothing is for padding not for warmth. As we valve (release) gas and start our descent, we scan for roads, open fields and most of all, for power lines and other obstacles.

We feel that we are physically and psychologically starting the transition back to the world on the ground. Peter feels a combination of anxious anticipation of the task of landing this balloon and some relief that we will soon be able to again sleep in a real bed. Barbara regrets that the flight is almost over, since she always wants to fly more. One indicator of our return to earth, we are now low enough to stow the oxygen masks and close the tank.

About an hour before sunset we pick a field to aim for and several alternates to allow for variable winds. Peter will valve gas out and read off the rate of descent while Barbara ballasts and generally directs the operation. We miss our first field but are lined up on the second. The grounds winds will be

just fast enough to make it necessary to pull the red riplines and deflate the balloon. We deploy the trail rope to slow our descent; we hit and pull the riplines simultaneously. We tip and drag a bit, finally stopping amidst a jumble of gear and sandbags.

All is well. Our crew will be here in a few hours. We notify the command center and crew that we are down and safe. We will pack up and find a quick meal and a motel. We will worry about the race results in the morning. It was a great flight, regardless of where we finished!