



GAS DIVISION NEWSLETTER

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FLYING WITH HYDROGEN

By Mark Sullivan

Why should it be so difficult to do a hydrogen flight in the United States? You will hear many reasons but many are no more than myth. Our European brothers average around a thousand hydrogen gas balloon flights per year, and have an outstanding safety record. So why do we in the United States use helium?

It must be because all American gas pilots are rich! Well not all of us are! I had my first opportunity to fly with hydrogen in 1985 in Germany. Since my only other flights in gas balloons were in the United States using helium, I had the same thoughts many people have today, *my God that's the stuff the Hindenburg had in it!* After a couple of flights and spending some time talking with Germans about the hydrogen, my concerns were gone.

Hydrogen has more lift than helium and the difference can be felt in performance. You need a little more care when inflating and flying the balloon. During inflation, wearing cotton clothing and keeping electronic devices at a distance is good practice. When in the air keeping the appendix closed whenever possible is extremely important. Just like helium you need to keep the gas from mixing with air as much as possible. Because mixing of hydrogen and ambient air can cause an ignitable gas, you are more motivated to keep a watchful eye on the appendix while ascending and descending. Landing and deflating the balloon requires great caution. You may want to consider leaving your "cook stove" at home when you are flying with hydrogen, not a must but a good idea. (I have not had the nerve to light a match yet!) No matter how focused you stay the

gas will mix with air thus creating a more ignitable gas. There have been a few balloons lost on deflation when the valve hits the ground causing a spark. I would not recommend standing at the valve, wearing a nylon jacket, while trying to help the gas escape. Even with the new Werner developed parachute tops, there are times when the balloon still needs man-handling to get the gas out. Caution is a must.

It is my belief that if we are to continue to expand gas ballooning in the US, we need to start flying with hydrogen. Recently, I inflated at Balloon Fiesta Park to do a training flight. I inflated with hydrogen at a cost of \$1150; Peter Cuneo inflated next to me using helium (cost range: \$3,000 to \$3,800 in Albuquerque). With this kind of cost difference, I believe a hydrogen certified balloon is worth the difference in price. If you were to fly the balloon three times a year for three years the \$23,850 you could save in gas would help offset the higher purchase cost of a hydrogen balloon. The cheaper hydrogen also makes it more affordable for pilots who do not own their own gas balloons to fly as second pilot in exchange for the cost of a gas fill. I believe there are a number of pilots who would love to do some gas flying, if the cost was not so prohibitive.

This year's Balloon Fiesta will host the 5th America's Challenge Gas Race. The Balloon Fiesta will have the capability to fill seven balloons with hydrogen. This will make it possible for Europeans to come to the America's Challenge and bring their own equipment. Whether you are a US pilot going to a European event or a foreign pilot coming to the US, borrowing or renting good equipment is a problem.

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EDITORS' COLUMN
By Peter Cuneo & Barbara Fricke

This issue of the newly revived Gas Division Newsletter exists as a direct result of our division officers' interest in providing more current information to our members. Constructive feedback to help us move in that direction would be greatly appreciated (email: peter.cuneo@lmco.com or (505) 265-2865 at home).

We are just getting started and hope to improve as we go. Our goal is to produce 3 to 4 issues per year. We hope to present regular columns on topics including chairman's and editors' comments, readers' feedback, classified ads, coverage of recent and upcoming U.S. gas events as well as technical and historical articles.

We would also like to investigate the possibility of providing an electronic version of this newsletter to members with E-mail addresses. Advantages of this form of delivery are that it 1) eliminates cost of copying and mailing; 2) provides faster delivery; 3) allows possibility of including color graphics, photos and drawings; 4) allows possibility of including executables in text (example: Excel spread sheet to perform system weight calculations). For the time being, any members who would like to receive trial electronic copies in addition to hard copies can send me their E-mail addresses.

Until next time, we would love to get news of any gas activity (airborne or hangar flying) that may be going on out there. ☐

Karl Stefan and the Gas Division are currently developing a handicapping method to allow helium and hydrogen balloons to compete on equal terms.

It is my belief that after the 2000 Balloon Fiesta, interest in gas ballooning will surge. With AIBF and Matheson Tri-Gas, supporting hydrogen flying, just maybe we can finally put the Hindenburg syndrome behind us! ☐

GOOD LUCK, BRUCE!

Best Wishes from all Gas Division members to Bruce Hale for a quick return to full health and buoyant flight after his December liver transplant operation.

2000 GORDON-BENNETT

The 44th Coupe Aeronautique Gordon-Bennett will be held at Saint-Hubert in southeastern Belgium. The launch window opens at sunset on September 9, 2000. Launch may occur as late as September 12, weather dictating. As is traditional in Europe the race weekend coincides with the full moon.

The Event Director is Mathjis de Bruijn and Mark Sullivan has been selected as Deputy Director. Current plans call for all entries to be submitted by May 15, with an entry fee of 1000 Euros for those fortunate enough to be eligible. ☐

CLIFTON MCCLURE
1932 - 2000

Years before Project Mercury sent man into orbit for the first time, a project named Man High, on three separate occasions, launched 200 foot diameter manned balloons to the threshold of outer space. These 3 million cubic foot balloons and their encapsulated passengers were the budding space program's first attempts at measuring man's ability to survive in space.

On June 2, 1957, flying the Man High I balloon out of the Stratobowl in Minnesota, Captain Joe Kittinger attained an altitude of 96,000 feet. Two months later, on August 17, flying the Man High II balloon, Major David G. Simons spent 32 hours aloft at altitudes up to 102,000 ft. Finally, more than a year later, on October 8, 1958, Lieutenant Clifton McClure rose to 99,700 feet in Man High III. Kittinger is well known both for his later, high altitude, balloon borne parachute jump and his solo trans-Atlantic flight. Simons is known for his book on the project (*Man High*, Doubleday, 1960). Clifton McClure, who endured perhaps the most grueling of the Man High flights, is less well known to the balloon community.

McClure, received the nickname "Demi" for being born on the day in 1932 when Democrat Franklin Roosevelt was first elected president. By the time he was chosen from four finalists to fly Man High III, he was a ceramics engineer known for his intelligence, energy and stamina. For his flight, weather considerations caused the launch to be moved from Minnesota to New Mexico. Still, weather did not cooperate. On the first launch attempt, a gust of wind burst the balloon envelope on the ground just prior to launch.

After another round of agonizing preparations completed in less than 24 hours McClure was back in the sealed capsule breathing a special

atmospheric mixture. As the last available envelope was being inflated outside, disaster struck inside the capsule. Unbeknown to those outside the capsule, McClure had accidentally opened his parachute. His four hour long trial to repack his chute in his cramped, refrigerator-sized space is wonderfully described in Simons' book.

After a successful launch, things did not get better. Almost immediately the ground crew noticed the capsule temperature rising. As McClure reached his maximum altitude of almost 100,000 feet, his body temperature was over 101 °F. Four hours later it was 104 °F and an early descent was essential. After descent was initiated, a jammed radio switch cut off all voice contact with the capsule making it impossible for the ground crew to know whether McClure was still conscious and would be able to execute the landing. Somehow McClure did retain his consciousness and was able to perform all required tasks including cutting free



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the envelope after impact. Immediately after landing his body temperature was measured at 108.5 °F, a temperature still considered to be fatal to an average human.

The significance of this flight is described in this quote from *Man High*

“The lesson of this unexpected but priceless experiment was abundantly clear to all of us. An essential quality necessary to an astronaut would be stamina; not in a purely physical sense but in a psycho-physiological sense; a combination of deep physical reserves plus the all-important emotional determination to use those reserves. ... Its profound importance was inescapable when we looked at the record of McClure’s performance. ... Without communication he could get no help or comfort from the ground. He was completely on his own and he knew it. But instead of flipping into panic, his determination stiffened. ... By some miraculous accident, McClure had been dropped into the right place at the right time to be selected for Man High...”

In September, 1960 McClure was awarded the Distinguished Flying Cross.

I met Clifton McClure several years ago when he spoke at our local balloon club where we exchanged phone numbers. I was surprised to receive a phone call from him several months later. Clifton was very cordial and I very much enjoyed this and several subsequent conversations. He always apologized for ‘bothering’ me at work and we then usually spent a few minutes talking about his business selling used scientific equipment under the guise that some piece might fit into one of my work projects. Invariably that part of the conversation would dwindle and talk of balloons would commence. At the end of our last conversation, Cliff said he wouldn’t bother me any more because he didn’t think he had any equipment that I could use. I made a mental note to initiate the next phone call but work and procrastination got the better of my good

intentions.

Clifton M. “Demi” McClure, age 67, died on January 14, 2000 in Huntsville, Alabama of complications from a stroke. □

1999 RE/MAX RESULTS

The amazing results of the 1999 Re/Max Cup National Gas Balloon Race have already been well documented with both individual reminiscences and summary articles (*Ballooning*, March 2000; *Balloon Life*, December 1999; *AAAA Cloudbouncer*, December 1999). I have no desire to revisit this work but I do feel that a composite map of the balloon tracks could shed light on individual pilot strategies.

Sixteen teams launched with all balloons closely followed a common track during the early part of the race. The map presented in this issue gives tracks of the top ten finishers as gleaned from various sources. To make the map more readable, the tracks of three teams have been shown only at their end points.

The map shows that a definite decision point occurred near the border Nebraska between South Dakota at mid-afternoon Sunday (launch was Saturday evening). At this point, five teams stayed below 7,500 feet MSL and traveled northeast into Canada, later turning east around Thunder Bay. Another four teams chose altitudes nearer 10,000 feet MSL and went east toward the Great Lakes. Finally, one lonely team chose 15,000 feet MSL and found a track south of Lake Michigan. In the third day, flight duration seemed to have more impact than choice of altitude on total distance. As a whole, the middle altitude group definitely logged the longest distances.

Inaccuracies in this map are mine, memories are the property of the participants. Corrections or additions will be happily accepted and gratefully acknowledged in a future issue. □

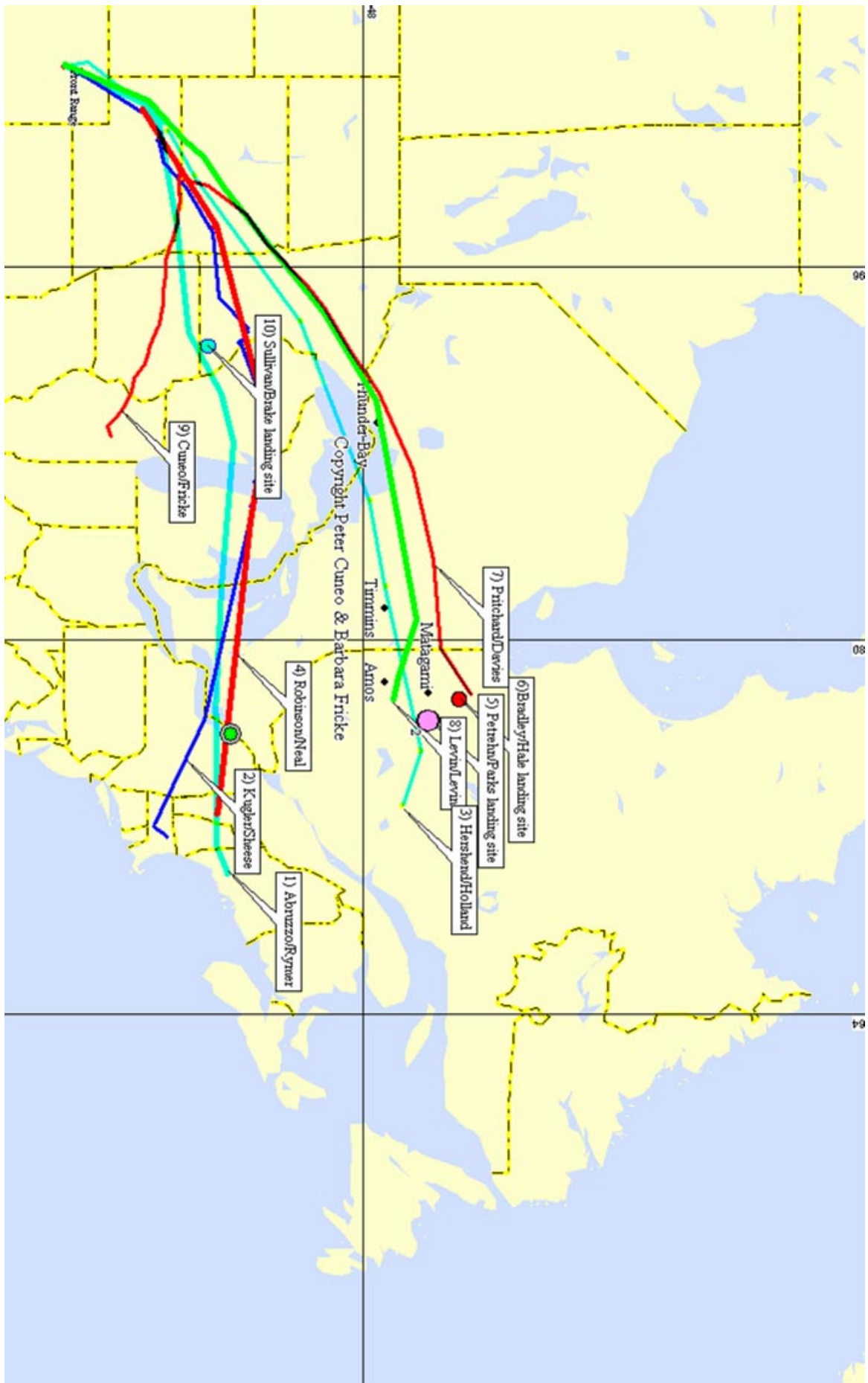




Photo by Denise Sofranko

UPCOMING OPEN EVENTS

June 9-11 National Gas Balloon Champ., Oldsmobile Balloon Classic, Danville, IL.
Competition: 3 part task – up to 10 balloons.
Cost: \$1500+\$110 task fee (due: 2-28-00).
Benefits: hotel rooms, gas fill. **Prize Fund:** \$3,000. **Entry:** H. Schmidt, 1110 Wintergreen St., Batavia, IL 60510, (630) 879-6733. **Website:** www.balloonclassic.com.

September 1-3 European Gas Champ., 10th Warsteiner International Montgolfiade,
Competition: ?? **Cost:** 500DM (due:7-31-00).
Entry: D-59564 Warstein, Domring 4-10 (02902 881388) **e-mail:** montgolfiade@ warsteiner.com
Website: www.warsteiner.com/sports_index.html

October 7-12 5th America's Challenge Gas Balloon Race, KAIBF, **Competition:** Gordon-Bennett distance. **Cost:** \$1250 (\$500 refundable).
Benefits: hotel rooms, gas fill, pilot pack & jacket,
Prizes: Trophies. **Entry:** KAIBF (505) 821-1000.
e-mail: balloons@aibf.org ☐

SHORT HOPS

RTW: Brian Jones, co-pilot of last year's successful Breitling Orbiter 3 RTW flight, was present in Albuquerque on March 17, 2000 to accept the 1999 Harmon Award from the NAA on behalf of both Breitling pilots and their two chief meteorologists.

The next day, Brian gave a slide presentation and reminiscence of the flight as part of 3rd Annual Air Sports Expo.

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ANTENNAS: Bob Archer, Sportcraft Antennas [21818 Ocean Avenue, Torrance CA, 90503, (310) 316-8796, bobsantennas@cs.com] offers a series of transponder and communication antennas intended for use in composite aircraft. These do not require ground planes and are "...designed utilizing concepts common to military and space vehicles". They are also available from Aircraft Spruce (800) 831-2949.

Model 5 (Aircraft Spruce P/N 11-21005) is optimized for transponder frequencies (1.03 & 1.09 Ghz) and is stated to have a VSWR of 1.2:1 (that's really good!). It weights 4 ounces has dimensions 6"x 8"x 1" and costs \$85.00.

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National Gas Balloon Championship, Danville, IL: Balloonmeister Harold Schmidt reports that this event has accepted its full quota of ten gas balloons and pilots. He expects a fine race and is in final negotiations that should provide each gas balloon with a new Oldsmobile for the duration of the race.

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US GORDON-BENNETT TEAM: As of March 30, our three teams are expected to be Richard Abruzzo-Carol Rhymer Davis; John Kugler-Sheese and Jim Hershend-David Levine. Best of luck for a safe and successful flight in September.

GAS ON THE WEB

- 1) www.gasballooning.org/
1999 KAIBF Gordon-Bennett site
- 2) www.remax.com/
1999 RE/MAX Race. Hit 'RE/MAX Sports' then 'Team RE/MAX Ballooning'
- 3) www.flynh3.com/MissionControl.htm
John Kugler's site – details of his Re/Max flight
- 4) www.mindspring.com/~danni/page10.html
Danni Suskin's site – Feb 7, 1998 gas flight photos
- 5) www.multimania.com/aerostat/ffa/gordon98.htm
1998 Gordon-Bennett It never happened, site shows historical photos. **Text is in French!**
- 6) www.cocks.be/Gordon-Bennett/Default.htm
1999 Belgium Gordon-Bennett Report.
Text is in Dutch!
- 7) heawww.gsfc.nasa.gov/docs/balloon/balloon_top.html
NASA Scientific Ballooning - High Altitude Gas.
- 8) sdwww.jhuapl.edu/FlareGenesis/Antarctica/Launch/launch.html
19 day scientific flight of a 29.4 M cu. ft. balloon

GAS OFFICERS/DIRECTORS

Chairman:	Troy Bradley	505 332-2829	2000
Vice Chair:	Richard Abruzzo	505 856-6419	2001
Secretary:	Shane Robinson	417 865-0800	2001
Treasurer:	Bert Padelt	610 845-7857	2000
	Randy Woods	314 993-1044	2002
	Mark Sullivan	505 256-6834	2002

CHAIRMAN'S COLUMN

By Troy Bradley

Welcome to the first issue of our new Newsletter!

With the growing U.S. interest in flying with lighter than air gasses, it seems an appropriate time to reintroduce a newsletter dedicated to the beauty of silent flight. It has been a number of years since the Gas Division has had any formal means of communication. In the past, various individuals (on several occasions) have taken on the task of editing a newsletter for the division and their efforts were greatly appreciated. However, their goal of editing and publishing grew into the more daunting task of getting people to write articles. As you might guess, the editor became the researcher, writer, publisher, and distributor. Ultimately, these people burned out and quit. Now we have the talents of two gas enthusiasts, Peter Cuneo and Barbara Fricke, who have offered their services in starting up a newsletter for the Division. Let's help them out! This is a forum to express your views, tell your stories, and share your knowledge with anxious readers.

The Gas Division has sanctioned two events this year. For the first time in years, we will be having a sanctioned points race for the National Gas Series Championship. The event will take place in Danville, Illinois in conjunction with the Oldsmobile Balloon Classic, in June. The other sanctioned event will be the U.S. Gordon Bennett Qualifier which will run during the Kodak Albuquerque International Balloon Fiesta. Hopefully, we will also have a 2nd Annual RE/MAX Cup. RE/MAX was hoping to host the Qualifier, but since KAIBF outbid them they are currently assessing whether to have an event this year or not.

I'm sure you will find this Newsletter informative, entertaining, and timely. Please help Barbara and Peter by sharing your feedback and stories. Communication is the key to any successful relationship. □

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DISCLAIMER

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