

Paranoia as a Virtue

by Bob Whelan

Introduction

Did your nightmares include standing naked in front of the class after forgetting your homework? Discovering your parents had moved away while you were at school? Trust me, childhood nightmares aren't nearly so bad as discovering an *adult* fear wasn't misplaced.

One of my early soaring fears was, "How can I *know* I've sufficient pattern altitude?" Maybe it was an overactive imagination, mere cowardice, or simply paranoia. In any event, I vividly envisioned pattern sink/conditions worse than I could handle, *regardless* of skill level.

Obtaining training and license at Cumberland (MD), a valley airfield immediately downwind of today's famous "Allegheny Ridge" didn't help; there were many horror stories of rotors scrubbing the airport's pattern, and white-knuckled pilots.

A few years and several hundred soaring hours later found me soaring from a western site immediately in the lee (three crow miles) of another range of hills (the Rocky Mountains). Egads! In the manly west even local non-flying types had a name for the fierce downslope winds that regularly pruned native trees: *Chinooks!*

There I was, primed to enter the ranks of wave pilots, based on a field then being used to set the still-existing Colorado state altitude record...and more worried about the pattern than any other aspect of the flight. I sought advice from Bruce Miller, Boulder's most respected (feared?) glider type, a longtime glider FBO, paid thunderstorm research glider pilot (hit by lightning), with an IA, CFI-G, DPE, etc., etc., etc. Understand, Bruce didn't walk from place to place, he *strode*. When he talked, you tended to look for his foghorn, especially when the subject was safety...most specifically a crucial absence of it from someone's pattern. Though Bruce passed in his sleep (way too prematurely) more than a decade ago, I'm still proud of the fact none of my patterns or landings were ever subjects of his foghorn analyses; I worked hard to make it unnecessary. Always have, and always will.

I once asked Bruce how he dealt with and thought about the risks of wave and rotor flying. He replied, "Two types of pilots soar from Boulder – those who will fly in the wave, and those who won't." Pressed for details, he suggested rotor turbulence was the Great Separator. Pressed further about pattern turbulence and rotor sink, eventually he paused, then said something it took a while to absorb the profound significance of. What he said was, "There's no guarantee you'll never encounter rolling inputs capable of driving a wingtip into the ground on short final. However, my experience has been things generally do tend to smooth out somewhat as you near the ground. You simply have to decide what risks you're willing to take."

Intentionally soaring with thin margins has never been one of my secret fears, simply because each of us pretty much controls our margin meter. What worries me is when fate, or destiny, or Aeolus, or whoever rules my world, controls the meter!

The long and short of it is I've always flown my patterns conservatively, with a heightened sense of paranoia. Once – back when I had 1300 soaring hours, or, enough to be considered 'experienced' by a significant percentage of weekend enthusiasts as myself – whatever tendency I may have had to conclude my paranoia was misplaced, vanished in the stress of a downburst.

The Twilight Zone – I

If you think downbursts are limited to thunderstorms or enthusiastically convective days, think again. The first two of my three encounters with them occurred under 'stratus-y' marginally soarable conditions. The first remains – without competition – *the* most difficult flying conditions I've ever experienced. Either of the first two could easily have killed me.

How bad was #1? Survival was a roll of the dice. I did enough things right to give myself a chance at survival, but had I not been flying from my home field, over known terrain, I probably would have been a statistic. Never before, or since, have in-flight conditions been so bad that part of my overstressed brain actually wanted relief from the stress *while I was enduring it*. (Think about *that* for a moment!) It was as close as I ever care to approach 'quitting' in the air...by 'quitting' I mean resigning myself to a crash simply because there was so little reason for hope for my immediate future.

Even before I'd completed the initial turn away from my homeward-bound course towards my emergency option, while still 2,500 feet agl I'd concluded if I could *walk* after my looming arrival, I'd be overjoyed.

Shear violence made it impossible to focus on potential fields. I actually had trouble *locating* my preferred crash site, a 2800' grass strip. Why? The frequency and magnitude of vertical and horizontal shears prevented focusing on ground features before the next gust arrived to jolt my head to some newly random position. Imagine trying to use high-powered binoculars from a moving car...hopeless. As for violence, I could hear myself grunting involuntarily when positive G forced air from my lungs. Never before or since have I felt I had zero idea what the air might throw at me next.

It's hugely demoralizing to be on short final, uncertain if you're going to under or over shoot a half-mile-plus field. Conditions were sufficiently brutal the 25+ knot crosswind was a minor, background concern...at least until I sank below the tops of mature cottonwoods lining the upwind side, when angular shears entered the picture. Then – amazingly, astoundingly – at

the bottom of yet another wild, uncommanded gush toward the ground - well *after* I'd crossed the runway threshold – the crosswind vanished, aileron authority sort of returned, and after one final horizontal gust ballooned me six feet back into the air, I accomplished a decent wheeled-on touchdown. I was so relieved to be down and rolling, I forgot to apply the wheel brake for a few seconds, prematurely de-stressing. A trivial bonus was halting less than 100 feet from a gaping irrigation ditch.

After recovering from the sheer immediacy of things, prolonged contemplation generated two useful conclusions. 1) I managed to change mental gears fairly rapidly after the air shredded. 2) I kept flying the plane until it no longer responded.

Whatever you may think about my conclusions, I think they're important to my future survival as a soaring pilot. In the 90 or so flight minutes preceding nature's surprise, save for miles distant, innocuous virga bands, there was nothing – as in zero – visual or physical to suggest that what was going to happen was about to. When it did, had I not been able to rapidly implement a Plan B, I would have arrived at the ground in an urban area, with all its non-agricultural implications. Life-threateningly bad. As for my 2nd conclusion, I hope you don't find it fatuous; I sure don't.

The Twilight Zone – II

Five years and 600 hours later, a 75 minute flight was logged: “360° virga; 2ND SCARIEST PATTERN EVER; 1,500' AGL @ X-wind; barely enough for final; BIG SINK.” Beneath a solid stratus deck present since dawn, lift was less than 200 fpm for most of the flight. As top man in a three-ship stack, I radioed I was pulling the plug due to mammatus seven miles south. It would've been gratuitous to include its mere presence that day was, to me, shocking and demoralizing. Nor did I add what I fervently hoped, “My goal is to be on the ground before more develops closer!” I can't say I had a *feeling* about what was coming, but I definitely didn't want to give the weather gods a chance. My two buddies land in the same utterly benign (nearly zero breeze) conditions in which we'd towed, with me still slightly above 3k agl, directly overhead the field, 90° flaps, when the ship gives a little fishlike wriggle, then begins trembling like it's skidding atop small cobbles. My heart sinks. I rack around in a tight 360 to check a 2nd patch of mammatus that had developed about 5 miles west during my descent, and a 3rd a few miles north; none of the three has grown much. Fearfully, I look directly overhead. **CRAP!** There it is – a 4th patch of mammatus!!!

At least this time, the air didn't shred, it merely plummeted. Control wasn't an issue, just flying a decent pattern.

West-streaming dust made choosing R-09 a no-brainer. That decision made, here's what I as Joe Pilot did/had time to do, once caught in the downburst after completion of the first 360. Again heading 90°, now 3000' AGL directly overhead the center of my intended runway, I selected thermaling flaps, executed a 2nd steep right 360 checking for possible field traffic, reversed to a 360 to the left and landed, after turning base *maybe* 50 yards beyond the runway threshold. I didn't (need to) use descent flaps in either 360 until perhaps 30 feet aloft on *very* short final. Call it 3,000 fpm down. After landing, I decompressed in the still howling east wind, seeking to calm down from the near heart

attack I'd had on my abbreviated downwind.

Why the heart attack? There I was, on a curving downwind that clearly was going to be very short in time, with but one more major decision to make...when to steepen into base. Naturally, focus was on the ground, gauging distance made good, height, angles and such. Fully committed now to an east landing...as in well past the midfield point of the runway and plummeting like a doomed ship at sea, the sight picture induced a heart-stopping thought: *Omigod! I'm about to land downwind!!!* I thought that, because it *looked* like I was. The ground was blooming at a rate hugely in excess of distance made good on downwind...just like you'd presumably experience when turning 'downwind' the wrong direction on any moderately breezy day. So strong was the visual illusion, that even though I knew sanity precluded attempting to maneuver for a landing to the west *on* the airfield, or alternatively, merely continuing west to raw prairie, I simply *had* to double-check reality. With dust still streaming west, I swallowed my heart and landed east. Afterwards, I was pleased (amazed!) I'd glommed onto the correct reason for the visually-induced fright. I've not since encountered anyone who admits to a similar experience.

Soon after I touched down, winds subsided sufficiently for me to remove my canopy, then my horizontal stab and begin trudging the several hundred yards to my trailer with the latter piece tucked under one arm. My heart was initially filled with ingratitude toward my two buddies, neither of whom came to help with the pieces, much less express relief at my safe arrival. Instead, I got, “Why'd you land in all that wind?” Only an extended conversation convinced them I could barely walk without shaky knees crumpling. Neither had a clue what had just transpired overhead. I'd've been happy to share their ignorance.

The Twilight Zone – III

My wife and I recently had a great flight in my club's G-103. We soared 35 miles SW and overflew 14,264' Mt. Evans, then soared 55 miles N to overfly 14,255' Longs Peak, then SE to Golden and back to Boulder...more than 100 crow miles of thermaling-turn-free soaring. We did have to avoid bands of virga. N-S streets would boil up, over develop and dissipate mostly in place. Reversing course above Golden revealed the first E-W line of virga, naturally extending to nearly directly atop the Boulder Airport. Sighing to myself, I tucked my tail between my legs, ran back to Boulder using lots of spoiler, and prepared for the worst; had I been in my ship I would've outwaited things, but after nearly 3 hours mostly above 16,000' msl, the 'group decision' was to land and deal with whatever conditions the virga would bring.

For readers unfamiliar with virga – precip that evaporates prior to reaching the ground – understand it's common out west. Often good, occasionally smooth, lift can be found adjacent - and not too rarely - *within* it. Its other extreme is downbursts. The day I *think* I can distinguish between 'good virga' and 'bad virga' will likely mark the day I should retire from soaring. Unless I'm really, really high above ground, and the virga is geographically isolated, I treat it with all the respect I give thunderstorms, poisonous snakes and large, uncaged, predatory mammals.

Boulder's AWOS was simultaneously useful, of some curiosity value...and depressing. AWOS winds shifted around the compass, gusting from 17 to 26 as we neared the field. I targeted 65 knots for pattern speed, noted uncommanded excursions exceeding +/-10 knots, aimed 'somewhere in the first half' of the 4000 feet of pavement, and slid down from the sky dancing on the pedals trying to minimize the many significant yaw swings, enduring thrilling vertical excursions, waiting to see what the low-level crosswind would be. Happily, at about three feet, things settled down, and a no-sweat, small crosswind touchdown ensued. For perhaps the first time in my life, I derived some satisfaction from my previous two downburst encounters, because after this one I guessed Mother Nature had previously thrown her worst at me, at least on my home turf. In any event, my attitude while enduring it this go 'round tended toward weariness rather than abject fear.

Having less logbook time, my wife's attitude understandably differed. "I closed my eyes during parts of that pattern!" she admitted. Had I thought it helpful, I'd've done the same.

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Your Point Is...?

Were I Weather King of a Perfect World, I would've happily avoided all three of these patterns. It gives me no pleasure to have them under my belt. I don't consider myself a bold pilot, and I hope to some day become an old pilot. Meanwhile my time and experience probably make me at least a hoary pilot to many soaring practitioners.

I wonder if I would have survived my first downburst had I not already been paranoid and mentally primed. The 2nd one was completely different in 'feel,' and could easily have led to a deadly outcome had I succumbed to the optical illusion experienced on downwind. I suspect even the 3rd one – the least ugly to deal with – might've been of a seriously problematical nature for Joe/Josephine Average Soaring Pilot (who of course does not exist).

Nevertheless, and though virga may be mostly a western U.S. phenomenon, thunderstorms and downbursts are not, ***nor do they recognize pilot experience!*** For what

it's worth, it's my working conclusion a large percentage of soaring practitioners seem to have a significantly more benign view of negative pattern possibilities than do I. Worrisomely, I see way more low patterns than I do high ones. What's your experience?

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Here's food for further thought quoted from an article by Dr. George S. Young in the August 1987, issue of *SOARING* entitled, "The Structure and Prediction of Thermals."

"It is worth noting that the average downdrafts reach maximum strength at a rather low level. Thus, the sink in the landing pattern is apt to be worse than it was on final glide. While peak sink rates in the downdraft cores occur halfway up to the inversion, they don't decrease much as one descends to low levels. Not a very comforting thought."

Indeed.

I'm not trying to frighten anyone from continuing with the sport, nor brag on my own hoariness. But I *am* very serious about encouraging all of us to take our patterns more seriously than we seem to at the individual level. Heck, each year a few of us die under relatively routine pattern conditions. My personal list of soaring-pattern-deceased former companions includes some I considered better pilots than myself, and whom I actively seek to emulate in certain ways.

Fly all your patterns on the high side of the 'drag cone' your ship is capable of. Getting rid of excess altitude in the pattern is a whole lot easier/safer than gaining what you don't have, back.

SSA

About the Author: Careful reading of the preceding article will have told those whose paths haven't crossed the author's, most everything pertinent you might wonder about him. He loves all forms of aviation, especially soaring, and looks forward to many more landings in benign conditions (while preparing for those that won't be).

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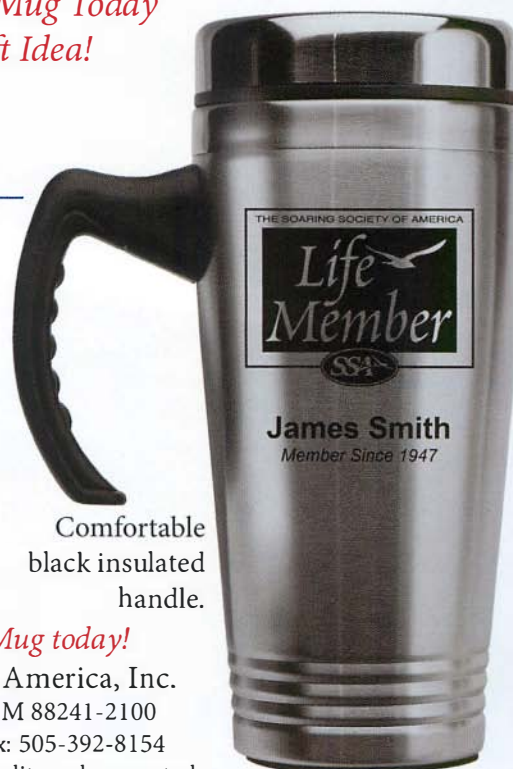
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