

What is Judgment?

Quent had been in the air four hours; the task had been all but impossible: only 200 km, but gusty strong south winds, low cloud bases, weak and broken lift. He gloried in the penetration of his new Ventus – the spot where you'd be landing was always far, far off. He was close to finishing this difficult task; low, but he'd been low time and again in the past, and squeaked in somewhere.

He was on final glide, just six miles out. He was below 500 ft agl, and really needed some wisps of zero-sink to make it. The contest field beckoned, alluring, drawing him on, just beyond his outstretched fingertips. Vaguely, he wondered whether the wind might have increased. He hadn't thermalized for a long time; the last thermal on which his flight computer might have estimated winds was 30 miles behind him. He had been 4000 feet higher there, escaping from a deck of overdevelopment evolving behind and around him.

However, he didn't analyze this now, he was looking at a field of bare dirt ahead, between him and the airport. He could tell he'd get past that, and from that bare dirt there should really be something like lift rising to boost him enough to make it. He'd done this many times before; there was always zero-sink down low. He felt a bump and circled once. Nothing.

He flew low over a farmhouse, then over the field. Nothing workable. Now, he was down below 200 ft agl. He flew the entire length of the field, hoping for something, anything that would get him home, only four miles ahead. There were only gusty bumps. Now he was almost on the deck, the only place to land was the field he had just passed.

He zoomed up, slowed in the reversal turn, felt the wings burble and rock, then leveled and aimed to land.

Geez! He was rocketing along like crazy! In ground effect, he couldn't get her down with full spoilers! The fence at

the end of the field rushed toward him. Well, at least I'm going fast; I can zoom over it, he thought. He stowed the spoilers and gently pulled the stick; he relaxed as he cleared the fence. Yikes! Power lines! He pulled more to clear those, felt a burble; then the glider's controls simply failed to work. He felt weightless, giddy. The glider was turning left with a mind of its own. There was a violent jerk, the world turned; there was a noise of tearing and breaking, and then, nothing.

On the ground nearby, a family having a barbeque in their back yard saw a glider whistle past, just over their buildings. It flew over the field south of the house, then zoomed up into the air, banked and turned, and flew back, speeding low over the ground across the field toward them.

It zoomed up again, over the fence, and high over power lines just beyond it. Suddenly, the wings rocked back and forth like a kite, it stopped climbing. The left wing dropped, then the nose and it fell into the power lines, then onto the ground. The wings broke; first the left hit the ground, then the right folded down; the tail folded over at the middle, the cockpit cracked like a boiled eggshell and the canopy flew off. The window fans in the house stopped running. The TV, talking to itself in the family room, went silent.

They ran to the broken glider, just a couple hundred yards away, carefully avoiding the downed lines when they got there. There was a man slumped in the cockpit. His wounds were not bleeding; he had no pulse.

He had, in that instant, become a former racing pilot; his wife, a widow; his friends, mourners.

What is judgment?

In the simplest sense, it's what keeps us out of trouble. As we become impaired, whether through fatigue, or any other cause, loss of ability is not nearly as important as loss of judgment: We can

compensate for loss of ability, but we are blind to our own lost judgment.

We all feel as though we know what judgment *is*. Although we recognize it when we see it, can we explain it? For example, Tony Kern's excellent book, *Redefining Airmanship*, has a wonderful chapter, Judgment and Decision Making. It is well worth reading, yet Tony assumes his readers know what judgment is. My experience is that when I've heard judgments debated among professionals, their comments have sometimes revealed unwitting differences on what judgment *is*.

Let me offer a definition:

Judgment is the ability to anticipate the consequences of our words and actions, and to assess risk. Thus,

- Poor judgment is inaccurately or incompetently estimating the consequences of what we do or say.
- Poor judgment is discounting or failing to prepare for risk.
- Absent judgment is failing to try, blundering optimistically forward, and presuming that things will turn out OK. (Think, "six-year-old boy.")
- If there is no risk, judgment isn't in play.
- There is risk only when some factor is unpredictable or unknowable. Thus analysis and knowledge reduce risk.
- Poor judgment is falsely justified when things turn out well. This can lead us to admire ourselves or others when the risks we took did no harm.

Judgment is the thought, not the action.

It's easy to analyze piloting mistakes, easy to speculate on what things must have gone wrong. But these errors are not themselves judgments; they are the *outcome* of judgments. Have we mistaken our speed, misperceived our attitude, forgotten how to slip? None of these is a judgment. We are reviewing judgment when we see the action and ask, "*what was he thinking?!*"

We could list Quent's mistakes, both those he made this last day, and those he made habitually. However, mistakes don't always imply poor judgment, for they may be related to knowledge, skill, prediction, analysis, or chance. On the other hand, a successful action, such as landing in front of another airplane, or going for a ripe cloud downwind over a forest, may



reveal a lack of judgment. Getting away with risk-taking does not justify the presumptuousness that caused it.

Often, in retrospect, someone will say, "It was worth the risk." Seldom do we hear this after things have gone badly. More often risk is accepted without really understanding it. Minimizing risk is an age-old sales technique; we soaring pilots have faith that, even though sink is invisible, it will not overwhelm us.

What about Quent? Was he characterized by some propensity for deficient judgment? Or was his normally good judgment obscured by impairment?

Let me say, first, that Quent was the epitome of a pilot, and was a good human being. Obviously the fact that he killed himself by getting needlessly into a bad situation only proves once again that intelligent, well-trained, skilled, knowledgeable, and resourceful pilots kill themselves as thoroughly as any of us fools and incompetents. Risk can bite anyone, even if it's anticipated, because *that's what risk is!*

What about Quent's actions and proclivities might have contributed to this fatal accident?

First, his skills. He was (as are many elite glider pilots) a military fighter-jet pilot; then he was an airline pilot, and a check ride pilot for his company. He was an adored and respected leader in the soaring community. The only negative about this high level of skill and knowledge is that delight in what we know and can do well can blind us to what we don't know, what we can't know, and to our natural susceptibility to illusions of perception.

Our delight in great skill may distract us from awareness of impairment, and from consciousness that adverse circumstance may exceed the capacity of us or our craft to respond. For example, if the rotation rate of turbulence exceeds the maximum roll rate of our glider, we will go inverted no matter how good we are. If this happens a hundred feet off a mountainside, we and our ship will be in pieces in a trice.

Poor judgment may be inherent in sport. At work, the chief goal is vigilant caution; at play, the chief goal is relaxation or excitement. Our proclivities may change with the situation. And accepting risk is – we must be honest – exciting and

even thrilling. Quent, on this day, was doing what Quent was known to do: play risks to their limit.

He had often pushed final glide to its limit, arriving at the runway's end with neither altitude nor speed to spare. One day he landed out downwind, and damaged his ship when he "ran out of rudder" – which of course happens when the rolling glider reaches a velocity equal to (wind speed + the minimum rudder-effectiveness speed), a non-trivial velocity with any significant tailwind.

Physiological risk-taking is perhaps less obvious to us than stick-and-rudder risks, for their effects are insidious. We are used to pushing ourselves during all aspects of life, into and through fatigue, hunger, dehydration; we work through illness, we climb to the edge of hypoxia, and we even drink alcohol. Quent flew in the hot desert southwest; he clearly felt that all he needed for an hours-long task in temperatures over 100°F was a liter of water. Hello? Earth to Quent?

Of course, the folks who told him to do differently, that he was taking too much risk, were not doctors; they were just overly fussy amateurs like all givers of free advice. This is a problem with advice: we tend to discount it if there's not the right label on the bottle.

Even if the advice is technically wrong, the fact that our friend is risking friendship to point us in another direction should be a clear signal to us that *something* is wrong, and that he or she cares enough about *us* to lay aside normal reticence and bring it up.

Beyond that, as every mother of young children knows, worry saves lives. When your friends annoy you with worry, go ahead and believe their advice is a bit off-kilter – but do ask yourself seriously, *What am I doing that worries my friend?*

OK, back to judgment. What happened that day that shows poor judgment?

Let's work backwards:

1: A downwind pull-up over electric transmission lines at low airspeed. The wind at the airport 4 miles away was 18 knots gusting to 26 knots. No wonder he couldn't get down into that field; no wonder he felt he could zoom over the power lines! If his airspeed was 45 kt,

his groundspeed was 67 kt, and down in ground effect, that feels *really* fast, fast enough that a little zoomie over some power lines might seem natural. Quent's brain wasn't working well, for he obviously did not anticipate or detect this *vection illusion* and compensate for it.

2: Flying to the upwind side of a field instead of landing. This makes *no* sense; Quent's brain had failed him: The thermal from a field *always* comes off the most downwind part. If you fly upwind toward a field, any thermal will be encountered *before* you get to the field. If you're 100 ft agl at this point, it's gotta' be gear-down, spoilers-out, flare and land. Quent's brain must have been severely impaired, probably by volume depletion, to miss this.

3: He overflew an airstrip a short time before the accident – just a few minutes – at 1000 ft agl. At that point, it should have been clear to him – with the wind as it was, and the weak, turbulent lift – that he could not reach the finish-line field and he should land out there. His brain didn't keep track of the point beyond that field where he could neither get back to it, nor to his destination.

4: It was a hot day, over 100°F and he'd taken only a liter of water for the four hours in the air. He'd possibly lost that much just waiting in line for tow! When we sweat, we lose both salt and water (volume). However, we're not aware we're sweating because it evaporates so quickly. Then we go high, cool off, our veins and arteries shrink to decrease heat loss and we may pee a quart or two.

Then we descend into warm air, our blood vessels expand, and then ... where can they get fresh fluid and electrolyte with which to fill themselves, unless we've brought replacement fluid and are chugging it while we warm up?

Judgment is not important unless there is risk.

If nothing bad can occur from a decision, there may be a dilemma, but judgment is not an issue. To order pepperoni or sausage pizza, strawberry or pistachio ice cream; to buy a grey or a brown suit; to "tank up" under this great cloud or that one nearby.

If there is no uncertainty, there is no risk. Arithmetic is not a matter of opinion; physics works reliably. Yet though



the glide ratio of the glider can be calculated precisely, the air is invisible and its direction and velocity fluctuate around their means with apparent randomness. From 30 miles out, the number on the final-glide calculator may be reassuring or scary; yet we really don't know just where there's lift and where sink.

Even at 45:1, eight knots down is eight knots down: *Judgment* is taking reasonable account of the day's uncertainties and making allowance. The price of running into sink should not be death; it should be a landout in a safe field. There should always be an escape.

Thus judgment is adding to our calculations – or our expectations – the uncertainty of error and unpredictability, the possible magnitude of the unknowable and the invisible, and the failure of telepathy regarding the intents and actions of others.

Judgment is realistically assessing risk: what *are* the bad things that can happen, what is their likelihood, how can we accommodate to them, who bears the consequences when a bad thing happens? Often, throughout life, it is others who bear the consequences of our decisions. Did the contest director call an impossible task? Well, it's my responsibility to have exits along the way.

As a doctor, I must remember that it is always the patient who bears the consequences of the treatment I recommend. As pilots, our families bear heavy consequences from our injury or death. Flying is a wonderful adventure; risk is thrilling. How much risk should we, in all fair-

ness, put on them?

There are consequences, too, for our sport. Every tragedy evokes in someone the "It ought to be illegal!" reflex. Each fatal act of foolishness galvanizes those who would "foolproof" everything.

As I explained to my budding teenagers, others grant us liberty by our showing wisdom and safe judgment. Are we trusted with the keys to a friend's aircraft? To the FBO? Are we trusted to share a thermal? All these things rest on our reputation, earned by repeatedly showing sound judgment.

Conversely, someone who repeatedly fails to anticipate the consequences of their actions or commitments does not deserve our trust, no matter how friendly, no matter how eager, no matter how flattering they are. Trust is a tapestry woven from a myriad of good judgments; it's easily torn and hard to repair.

Judgment is recursive.

That is, decisions that result in impaired ability further decrease one's ability to form good judgments. The snake eats its own tail. My decision not to put on oxygen until it's FAA-required, my decision to fly the day after the retrieve from hell and getting home at 5 am, my taking only one bottle of rehydration fluid on a long flight, and taking water instead of electrolyte drink, my taking medication that causes mental dulling or getting drunk the evening before flying a task.

These and many more things impair our ability to think clearly – and cloud

awareness that we *aren't* thinking clearly. This is the problem with alcohol, isn't it? After the third beer, judgment is not as fine, is it?

What clues do we have that our judgment is impaired? Unfortunately, perhaps the best clue is confidence. If we have no doubts, we aren't taking risk into account. Other clues are similarly subtle: fatigue, drowsiness, laziness, shivering, thirst, hunger.

Testing judgment.

How can we assess others' judgment? We always have to decide whether others' judgment is trustworthy. Instructors and pilot examiners know that it's easy to test skill and knowledge, difficult to test judgment. Psychologists have devised many excellent tests of mental capacity, knowledge, and skills, but there is no IQ test for common-sense. It is hard, in a flight test, to create a novel situation in which there's both real risk and temptation to accept it – in a way that doesn't put the examiner at risk.

Perhaps one aspect of a flight review should be to ask the pilot to tell some stories about memorable flights, for it's risk that makes them memorable, and the way the story is told reveals a lot about the pilot's judgment. This can't be "standardized" but could help the examiner decide when it's unclear whether to sign Jim or Joyce off. There are some other techniques, too, but that's a topic for another time.

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