

Tornado

March 29, 2004

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For years I sailed Lake Erie, regularly to Put-In-Bay aboard my Sparkman & Stephens designed half-tonner "Strider", 30 feet LOA, leaving Port Clinton on Friday evening and sailing across to pick up a mooring in the shadow of Perry's Monument on South Bass Island. After a Saturday sail to Canada or Middle Bass Island, I would return on Sunday afternoon, often encountering the fierce late afternoon thunderstorms that rip across the Lakes. I had experienced many of them, with sudden winds over sixty knots, lightning striking all around the boat and brief white-outs as sheets of rain sweep through, frightening but rarely dangerous to a well-found boat with room to run.

What I encountered one hot July afternoon was something much worse. Returning from Put-In-Bay across the shallow open lake west of Marble head with Elaine, my first wife, an excellent sailor with a great deal of small boat experience, we sailed toward our narrow marina entrance near Port Clinton under the usual severe thunderstorm warnings.

Under hot, brooding skies with the humidity building and distant thunder, we planned to drop our sails at the channel entrance and motor in as usual. Suddenly I saw a terrifying squall line of boiling clouds coming fast across the whole sky straight out of the southwest, a black curtain wall that seemed twenty miles wide, coming on at forty knots or more, right in our path. We were going to be hit.

We had only a few minutes before it reached us, so I started the engine. Elaine steered up into the still-gentle westerly breeze as I hurriedly dropped the sails and lashed them down tight. In the minute or two it took me to do this the storm wall hit, going from ten to at least sixty knots of wind in a few seconds. As I looked toward the beach and marina channel a few hundred yards away I suddenly saw sand, small boats, stones and tree branches go straight up into the air in a wall of wind thousands of feet high. It looked like the computerized special effects of a horror movie - pitch black boiling clouds behind and a brown wall of dust and debris coming at us. I knew we couldn't make it down the channel so I spun the wheel due north toward Canada and cranked up to hull speed, taking a quick compass "danger bearing" to steer by in zero visibility as I expected white squall cold rain as happens in most thunderstorms.

Instead, a wall of desert hot wind smelling of sulfur hit so hard that I staggered to my knees and held on for my life. A few seconds later the hot wind swung over 120 degrees in the strongest wind shear I have ever experienced, going from southwest to northeast and then turning icy cold in a few seconds, blowing us back into the beach of the mainland less than a quarter mile away. We were trapped and being blow ashore rapidly with our anemometer pegged at its top speed of eighty knots. The sound of such a storm I can only compare to that of several subway trains passing a few feet away or a jet engine being tested by your head, an unending solid roar of white noise. The wind veered again, to Northwest, blowing us into the rocky comer of the Marblehead Peninsula.

Under bare poles we were being pushed into the corner, even against full power, and would be on the beach in a few minutes. There was only one solution and that was to anchor quickly. Elaine held the wheel, trying to hold straight into the wind as I got out the storm anchor, a 45 pound Danforth on ten feet of chain followed by 5/8 inch nylon. The wind was too strong for me to stand so I crawled forward on my stomach with the heavy anchor laid flat on my back and the chain dragging behind me, lying down flat against the wind, shutting my eyes as dust, hard spray and debris hit me, carrying the coiled anchor rode in my arms like a soldier crawling under barbed wire. I carefully lowered the anchor with all 120 feet of nylon rope, lying down over the bow with solid water like a fire hose blowing straight in my face, seeing the anchor's nylon rode stream straight away as we blew backwards, checking the double bow cleats that must take the load and trying to keep my fingers clear of the fast streaming line that would cut off a hand in an instant.

Elaine had a small red cockpit cushion held over her head and ducked as low as she could for shelter as she held the boat into the wind. I remember wondering why she had the cushion above her head and then glanced at my own bare arms, now covered with blood from dozens of little cuts made by flying hail hitting as hard as a BB fired from a gun. I hadn't even noticed the stings in my concentration to get the anchor down without losing my fingers, but now I covered my face with my arm to save my squinting eyes from the driven hail. I crept into the cockpit and took the wheel, cutting the throttle back to try to set the anchor, thinking it would set as we drifted back.

By now there was no clear surface to the water at all and we seemed to be inside a whirling blender. Lake Erie's surface was a whipped froth perhaps six feet deep, with no waves at all, just a solid boiling blend of wind and water going sideways, and only about ten feet of visibility at best. I waited for the anchor to set and it never did. It occurred to me that we were drifting so fast that the Danforth planed like a wakeboard instead of settling to the bottom. We were making leeway backwards at perhaps eight knots, drifting into the deadly corner. In minutes we would be torn apart on the rocky Marblehead coast or worse, flipped into the boiling water as we pounded and rolled in the deadly Lake Erie shallows far from shore.

As clearly as it came from a loudspeaker I heard in my mind something I had once read: "A British naval destroyer caught in a typhoon in Hong Kong Harbor steamed full power to her anchor for two days to keep from dragging ashore." I reached down, put the throttle full ahead and in seconds pulled up sharp as the anchor dug in and held, slowed enough to dig in by the full power of the boat, saved by advice from a long-ago typhoon survivor. The nylon rope stretched and held, elongated perhaps 40% or more under the incredible wind load even as I powered full ahead, stretched as hard as an iron bar off the bow chocks, the bow sometimes rising to perhaps a 45 degree pitch as walls of wind battered us. Had the nylon line broken under such a strain, it would have snapped like a huge stretched rubber band capable of cutting a person in two.

Now came scouring sheets of icy rain, driven by hard wind and mixed with large hail, coming head on and rolling over us as I held steady under power to the tight

stretched anchor rode. White lightning strikes hit all around us and bounced in hissing arcs across the water but I was too deaf to hear the thunder at all or else the wind speed and chaotic air motion cancelled out normal sound transmission. The boat pitched like a rocking horse but the anchor held, though the boat tried hard to sail right out of her anchorage under bare poles once the wind steadied, pulling like a runaway dog on a leash in a large arc of anchor rode as the mast acted like a sail in the high wind.

Lake Erie, the shallowest of the Great Lakes, has a curious effect called a "sietch" in which water is actually blown away from the shore, dropping the water level by several feet like a tilted bowl on the side away from the wind, and this was thinning out the already shallow water dangerously. The depth meter didn't work, probably from the bubbles and sand whipped into the water, and I wondered if the six foot draft keel might pound against the bottom as we hammered up and down. I couldn't see the land for a bearing and so I just held on to the wheel. Suddenly a huge wind shift and incredible blast of hot wind from the left raised the boat perhaps six feet above the whirling water and spun it a full 180 degrees instantly. I felt the boat lift into the air as if picked up gently by a giant hand, spin in the boiling froth and then fall to strike the water hard with a deep single vibration like a hunting bow makes when an arrow is shot, a uniform deep note played on the whole hull at once, a single low, resonating pulse, felt rather than heard, echoed by the hull recoiling the same note again. We were suddenly facing in reverse and the anchor line immediately wrapped the prop shaft, stalling the engine, so we finished out the storm backwards, anchored by our own propeller shaft, as "Strider's" elegant stem parted the waves neatly. In a very short while it was over with the black front moving rapidly north across the lake and the sky clearing behind. By my watch the whole storm had taken less than twenty minutes.

The sky was a strange brilliant bottle green now and we had another problem, clearing the wrapped anchor rode from the prop. The wind died quickly as the black storm moved away across the lake and the wildly spun lake water stilled almost at once, but the strange sky color continued as I grappled the sunken anchor line off the stem with our light grappling hook. Hooking onto it I pulled the nylon up easily now that the wind load was off the rode, tied it to a cleat and cut it, leaving us anchored in reverse. Now I had to dive, so over the side I went into the surprisingly warm water, Buck knife tied to my wrist, still in my soaking clothes which couldn't get any wetter. I easily cut away the nylon rode from the prop and shaft and I will never forget the amazing green color of the warm water from below, a shimmering "Emerald City" light that seemed to infuse a radiant neon glow to the boat, sky and water. We motored back to the marina's sheltered harbor, docked safely, tied up and went to dinner, soaking wet and starting to shake from shock, cold and exhaustion. As I ordered a double Glenlivet the waitress asked if we had seen the tornadoes. "Tornadoes?" I asked. "Yes, she said, "Less than an hour ago two of them went right over Port Clinton without touching down and all the sirens went off. They came down out there over the lake". I realized suddenly how close we had come, too close to even see the twisters hidden in their black cloud of water, dust and debris. It was the counterclockwise rotation of the second one and possibly its suction that lifted and spun our boat like a mighty hand as it passed close by.

I called the Coast Guard the next day and was told that about fifteen miles from us a freighter had reported 115 knots of wind, the highest their instruments could record. The huge wind shifts we experienced may mean we had been immediately beside the tornadoes in what are called "surface inflow jets" by tornado experts, as nothing could survive the 200+ knot winds actually in the funnel core, but since we couldn't see the funnels, we will never know. The multiple rapid wind shears showed that there were actually at least two tornadoes wrapped together, an occasional characteristic of deadly F-2 or F-3 tornadoes which makes them even more dangerous as the highest wind velocities of a tornado are found on the right side of counterclockwise rotating tornadoes, just where we were.

Wind speed in an F-2 classification tornado is 113-157 mph, while an F-3 generates 158-205 mph. Fortunately, only 2% of all tornadoes are of F-4 (206-260 mph), F-5 (261-318 mph) or F-6 (above 318 mph), capable of tearing down brick walls, lifting whole houses off their foundations and turning entire cities into rubble. A stated damage characteristic of an F-3 tornado is "cars thrown", so I suppose "boats thrown" counts in the same category, above 158 mph, as an S&S 30 foot sailboat weighs several tons more than a Rolls Royce. The curious "inside a blender" effect as waves blow sideways instead of building up is said by some to be characteristic of winds higher than 155 knots. This "blender effect" where the water surface completely disappears has been described by survivors of the most intense tropical typhoons, conditions "which no canvas can withstand", as Beaufort put it.

I believe we survived a low-end F-3 tornado with a top speed over 160 mph, the equivalent of a Force Five hurricane for a short time. The sequence of events happened so quickly and demanded such attention that I don't recall being scared at all until after it was over, except for the instant of horror at first when I saw the wall of storm coming on, but it seemed that time itself slowed down out there. Because of this time-altered reality and the adrenaline-fed total freedom from fear and pain I felt I had plenty of time to consider and act in a world where everything happened almost in slow motion. I find I still dream of tornadoes from time to time, an old, primeval dream that comes in times of trouble, or diving in the strange churned water under the boat afterwards, water as warm as a bath and filled brightly with the strange green light that followed the storm. As my round-the-world sailing friend Stu Conway says, it gave me a good story to tell my grandchildren!
