May 31, 1984 | STORM-TRACK | Vol. 7, No. 4
David Hoadley, Editor | $4.00/year | Bi-monthly
3415 Slade Court | (Checks payable to
Falls Church, Virginia | David Hoadley)

I. COMMENTARY

"Chase 1984" is over now for many, both those who've returned to other parts or were al- ready at home in Oklahoma and Texas. This May was "the pits!" During the normal peak of the season, from the Dakotas to Texas, the total number of tornadoes could probably be counted on both hands. Even those that occurred were widely scattered and, occasionally, appeared (surprisingly) under extremely weak upper air support (one day had several west of the Pecos). During my twenty days in the plains, from May 6 to 25, I only recall one reported tornado south of Chatauqua, KS, in or near "tornado alley." I photographed one small one (thin dust tube) 16 miles east of Stapleton Airport, Denver on May 14, and a Jack Corso/Tim Dorr team caught up with a cold air funnel in the Texas Panhandle. Other than these isolated events, most of us chased ghosts (towers that wouldn't, caps that held, and Cbs that rained out!). I was in two "Kansas City" (National Severe Storms Forecast Center) tornado watches that never verified, based on closely monitored radio reports. Lou Wicker called it the worst season in five years. Jim Leonard mumbled about warm air aloft and weak difluence. I lingered as long as I did, banking on recurring Pacific waves that started to develop, then collapsed with landfall into either flat zonal (coast to coast) or almost full longitudinal meridional flow (Chihuahua to Winnipeg). No happy medium!

- - -

Oh, yes. Credit, where credit is due! Ken Crawford, Meteorologist in Charge and Area Manager of the National Weather Service Forecast Office in Oklahoma City certainly called it on March 18 in the Sunday Oklahoman: "...it looks like there will be below normal tornado activity ... by and large, Oklahoma's weather will be mild by severe weather standards." Looks like we'll all have to listen to Ken a little more closely in the future.

- - -

Like some of you, I had a lot of explaining to do, on my return, to friends and relatives, expecting dozens of pictures from Kentucky!? ...and Georgia!!? Hey, folks, give us a break! Hilly country and winding roads! Trees right up to the shoulder! Greater moisture with more low clouds, haze, and poorer visibility! Anyway, how many twister pics were published from these storms? None that I've heard. It's just poor chase country.

- - -

Early April was none too active per Tim Marshall (See LETTERS... section), but the latter half picked up somewhat in Oklahoma. The most destructive day was the 26th, when a dozen or more touched down, beginning near Stillwater and Guthrie. Early towers were rotating into Cb anvils as cloud bases dragged the ground, and 4-inch ice bombs rained from the sky. Gene Moore recorded these on video tape while filming the most dramatic storm he had seen in ten years. However, it was also the worst day for Morris and Terlton, OK, where ten fellow humans ceased their life's journey against a relentless wall of wind. It was also, unfortunately, the last day for a fellow chaser.

IN MEMORIAM

The Editor of Storm Track is saddened to report the loss of a University of Oklahoma student meteorologist, Christopher Phillips, on April 26, 1984. Chris lost his life in a one car accident in Logan County while chasing an Oklahoma storm. The car went out of control into a ditch and rolled, also injuring two passengers. This is the first known fatality to any "chaser" during or after a storm intercept. In this instance, the chase was an independent one and not an OU or NSSL sponsored research-project. Although not personally acquainted with Mr. Phillips, the Editor deeply regrets the loss of personal fulfillment and professional potential of this individual. The contributions which he might well have made to the science shall never be known. Those, such as this one, who share our fascination with severe storms also share a common bond and although we may be occasional strangers there is a kindred spirit which unites us all, a silent bond of respect and acceptance. Farewell Chris -- your loss diminishes all of us.

- - -

While driving through central Arkansas on my first chase day, Sunday, May 6, a tornado watch was issued from late morning to afternoon across the northern half of the State. However, with low overcast and visibility only 10-15 miles through the central part of the State, I quickly wrote this one off upon hearing that storms were moving at Interstate speed across the Ozarks. However, I did continue monitoring the Little Rock NOAA Weather Radio broadcasts as I drove. It was interesting that, despite a tornado watch, the local 9:30 AM radar report was still being issued at 10:35 (when I left broad- cast range), despite the fact that storms were moving at 50 MPH! At least this station gave me the coordinates of the watch, which an Indianapolis one did not, the year before. Observation: NOAA Weather Radio demonstrates some interesting inconsistencies and inflexibility. Maybe changes are needed here?

On a more positive note, Eric Rasmussen (storm network-expert, of the NBC Connie Chung show)

and Lisa Walters (the rare distaff graduate student, who is -actually- pretty) will become a real chase team on August 18, when they exchange vows and become Mr. and Mrs. Now that two of them will "have their heads in the clouds," they may only be seen occasionally in Shawnee, Oklahoma.

- - -

In case you missed it, the May issue of The Atlantic magazine has an excellent article by William Hauptman about the NSSL chase team, "On the Dryline." It features Don Burgess, Robert Davies-Jones and "Raz" in pursuit of the same tornado that I saw, with a writer from Science Digest, which leads to a personal observation on that April Digest article.

While I thought that it was generally good (showed chasers having some community responsibility), there were areas of literary excess which should have been edited. However, I had no opportunity to review it before going to press, so saw most of it for the first time just as you did. One item: I did not throw up my hands in "panic" as the tornado approached. The reporter's perception at that moment reflected more her own anxiety than mine. Also, a quotation of mine, at the end of the article, was taken out of context, and thus looks a little out of character on a subject where I am normally somewhat more reticent.

However, without belaboring this, those of you who have yet to face the press should draw a lesson or two from this: (1) Be somewhat circumspect in what you say. At such times, you're representing all the rest of us. (2) Try not to say anything that would embarrass someone else. I've heard several very funny stories over the years that I wouldn't even consider passing on to the press because of the extreme embarrassment it would cause to certain fellow chasers. (3) On the other hand, don't let the final story bother you. Keep in mind that, whatever care you take in an interview, the reporter will ultimately construct his or her copy from many pieces of conversation. Therefore, neatly logical discussions or elaborate explanations can be quickly reduced to a few oddly disjointed passages in the final copy. So be natural, as well as thoughtful. If a few lumps and warts stick out, so what? That's you! Just know yourself and hold to that central core. What you've seen and experienced is so much more, always, than any printed page can ever hold.

- - -

Finally, a follow up to the very interesting Steve Leitch article in the last issue of Storm Track on lightning-safe locations from which to view storms in open country. The Editor checked with a knowledgeable professional source at the National Severe Storms Lab, who fundamentally confirmed Steve's findings! Others at the Lab also have shared his experience of a noticeable decrease in automobile radio static when driving under a phone or power line. The presence of static on the AM band, especially a steady buzz or "zipper" type sound, indicates electrical discharge from your antenna and a likely nearby lightning strike. The single, important exception which my NSSL consultant emphasized is that proximity to power or telephone poles is not recommended, due to possible lateral

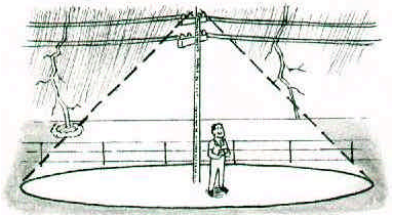


Figure 1

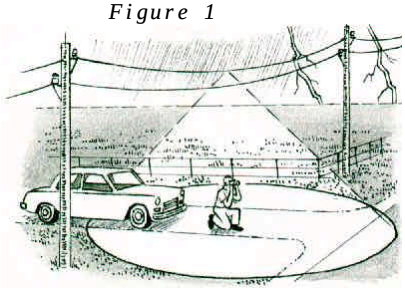


Figure 3

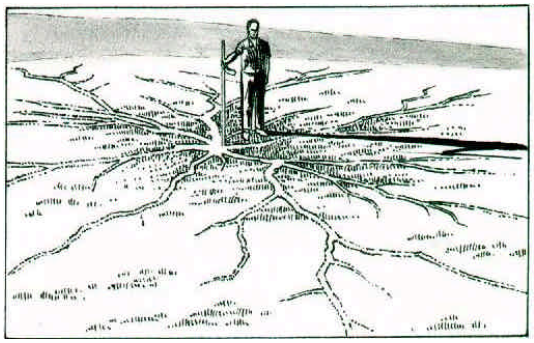


Figure 2. Green of the Fifth Hole at the Corona de Tucson golf course, Tucson, Arizona. Grassburned by lightning strike to fiberglass flag pole (E. Krider, Weatherwise, cover and page 111, June, 1977).

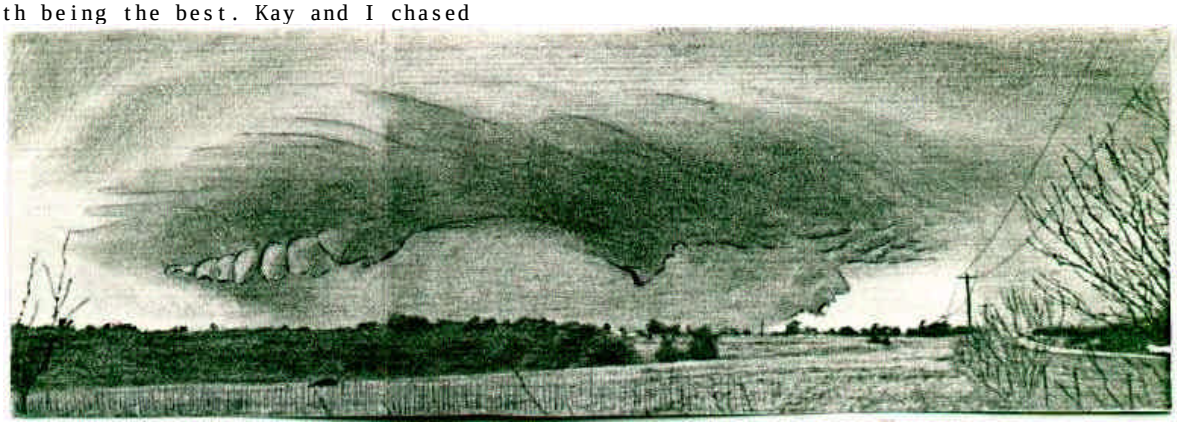
ground strokes from the base to nearby conductors (you!). Thus, while the so-called "45 deg cone of protection" from the top of a pole, tower, lightning rod, etc may protect you from ground to cloud bolts (Fig. 1), it doesn't assure you against ground conduction (Fig. 2). The safest location in your car, appears to be on a road about midway between two utility poles and underneath a phone or power line (Fig. 3). If you have to get out of the car for that one good picture, this may be the safest, location. However, the advice given here is only informed conjecture, based on limited personal experience. No one should assume 100% protection, and all take a calculated risk when exposing

themselves to lightning.

II. ROSTER

III. LETTERS/PHONE CALLS TO THE EDITOR

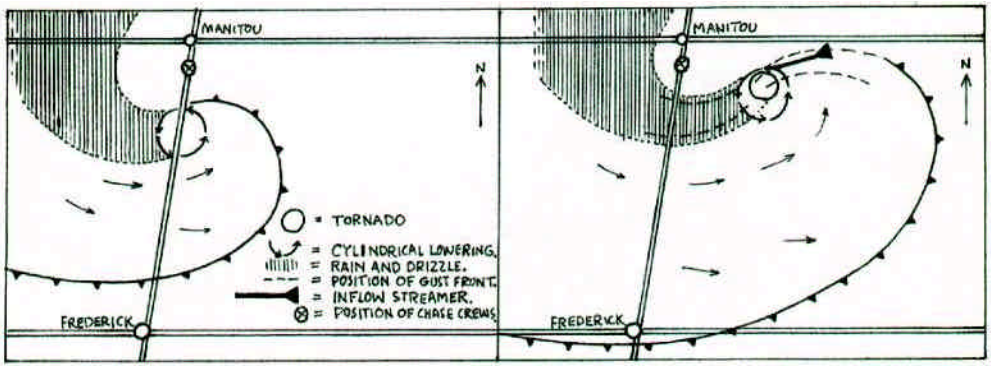
Tim Marshall wrote about mid-April that the first half of that month "will go down as a bust! There was no chasing, due to cold northwesterly flow ... I mean I've been walking around with a heavy jacket all week. We manage to get up into the 60's during the day. ... March only had two exciting chases, with March 18th being the best. Kay and I chased



Collapsing supercell, 5:30 PM, March 18, 1984; Grapevine, Texas

three storms west and north of Dallas and saw three nice wall clouds and two nice funnels. The storms were all collapsing supercells and became gust fronts, when they hit Dallas. They did manage to drop some golf ball and baseball hail nearby. It was a nice chase and very close to home. I've enclosed a few photos," one of which is illustrated above.

Lou Wicker has written of an interesting storm that he encountered on June 13, 1983. "... I saw a very unusual tornado at Manitou, Oklahoma (north of Frederick). I broke the core from the north, after seeing some tennis ball hail at Burns Flat. The Manitou storm was isolated on the dryline/frontal intersection. As precipitation lessened, I looked to the southeast and saw that the gust front had bulged northwest into a pseudo warm front (i.e. the mesocyclone was not up against the main rain core). To the south, and coming across the road, was a cylindrical type lowering protruding from the gust front base.



Very strong westerly winds were blowing across the road. Sand and light debris were being picked up, while light rain was beginning to wrap around the cylinder wall-cloud. Occasionally, one could pick out something which looked like a funnel. As this area moved over a dirt field, a ring of debris formed, and an inflow band of debris formed on the north side of this ring, extending northeastward. This asymmetric inflow was very strong. As rain began to envelop the circulation, sand and dirt (mud?)were still being lifted off the ground as high as 50 or 60 feet. All of this activity was taking place underneath a very ragged, still cylindrical-like lowering. Besides myself, an NSSL crew of Dan Burgess, Bob Davies-Jones, Eric and Neal Rasmussen and Lisa Walters also observed this tornadic circulation for approximately five minutes."

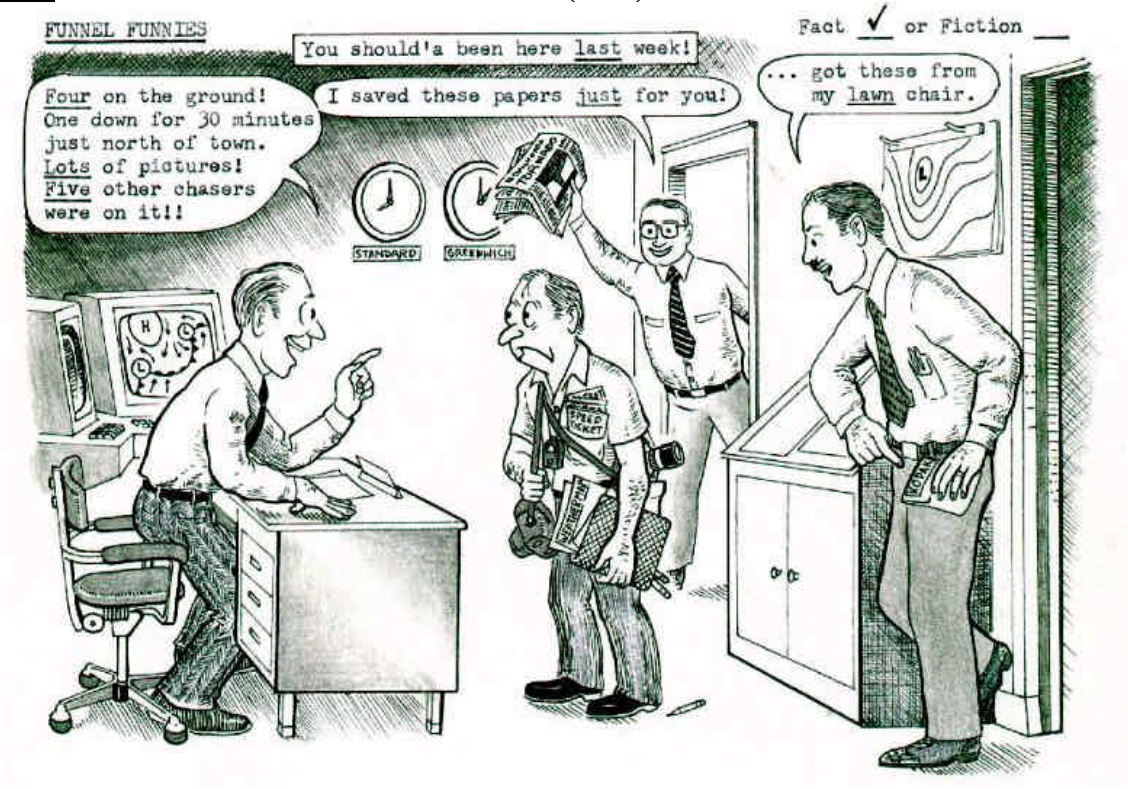
Dave Gallaher wrote ST in January regarding his 1983 chase experience, which was none too successful, but "I did have a couple of interesting encounters of the 'rotating' kind. On April 25th (my birthday), I witnessed a 12:00 PM whirlwind or dust devil that occurred in Davenport, Iowa. I had been looking at a pair of windmills, installed above a store that dealt in alternative energy devices -- one at an approximate height of 35 feet, the other 50 or 60 feet. Under a clear sky and with temperatures in the upper 40's, the higher windmill was turning moderately in a northeasterly wind,

while the lower one spun much faster in an easterly flow. I thought briefly about the strangeness of this diversity at such close proximity (the two windmills were about 40 feet apart and only 25-30% feet different,in height). Suddenly, a vortex, about twenty feet in diameter at ground level, spun up in the vacant lot adjacent to the store and quickly carried dust to about 150 feet. The dust was transparent at the top of the column but thick and creamy textured at the bottom. The entire column began to move toward a street, engulfing a white car and leaving it tan in color. It then swept through a row of houses, towering over the trees and bending as much as 15 deg from the vertical. After lasting about one minute, it swiftly dissipated. ...altogether a unique and valued birthday gift."

Also, Dave is interested in securing video tapes, if any chasers have good copy of tornadoes and severe storms. He will observe any constraints regarding copyright status with great care, since his interest is entirely in private viewing and study. If any ST readers have such tapes and are willing to share them, please contact Dave at: Route 3, Box 228B, Grant, Alabama 35747.

IV. BULLETIN BOARD/COMMERCIAL MARKET -$- FOR PICTURES V. CAMERA TIPS VI. TRAVEL TIPS

FUNNEL FUNNIES: "You should'a been here last week!" (Fact)



VII. FEATURE Highlights of Storm Chase '84
By David Hoadley

Chase 1984 began for me Monday morning, May 7, when I left Memphis, Tennessee. As already noted, a late morning tornado watch was posted for the northern third of Arkansas. However, local visibility was poor and storms were moving at 50 MPH, so I took a deep breath and let it go. En route, I became interested in radio reports of possible severe weather in central and eastern Oklahoma, along an advancing dry front. My only sky-watch detour was at a small highway restaurant west of Henrietta. By chance, Eric Rasmussen and his fiancée, Lisa Walters, had also stopped and were scanning the skies as I drove up. Trying out a borrowed video camera for the first time, I recorded "Raz" in rare and creative form, recounting his NBC interview with Connie Chung (regrettably this inestimable treasure was later accidentally erased). Tuesday to Friday, I quartered at Childress, Texas in hopes of some dryline activity. Unfortunately, the only two notable events during this dreary, hot wilderness hermitage was an ant attack on the way to dinner and a visit to the Childress pioneer museum. At the museum, I learned about a surveyor's chain. On the way to dinner, I learned not to stand too long (!) in one place.

Saturday was spent in Norman, visiting fellow chasers ("misery loves company") but parked up that afternoon, when I saw a large Cb on the O.U. satellite reader in eastern Colorado. I drove to Dodge City that evening and, Sunday, worked over a severe storm in southern Colorado. Although the NWS Limon radar reported a hook echo, I saw nothing in the reported area other than a weak line-echo-wave-pattern.

On Monday, May 14, I left the Goodland National Weather Service office and headed west on I-70, with my own 9:00 AM forecast for possible severe weather across the northern half of Colorado (Actually a second choice to my primary forecast area of southeastern Montana; however, this was beyond range for that day, so I opted for the closer area).

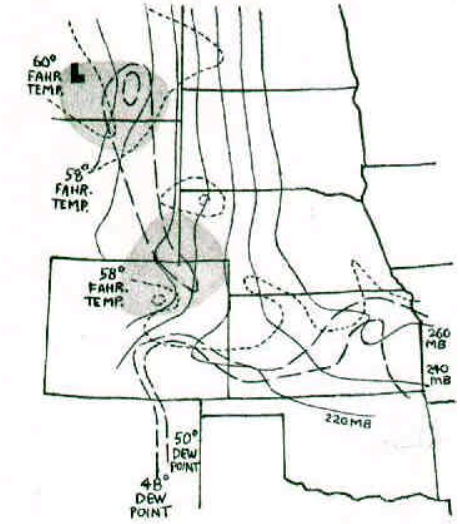


Figure 4

By mid-afternoon, skies were still clear and sunny over central Colorado in contrast to the previous day, when anvils filled the western sky. I was beginning to be concerned, until I saw distant towers near Denver. Taking reference pictures as I drove, the towers developed into two small, high base Cbs with narrow, short south-to-north anvils just east of the city (Fig. 5).

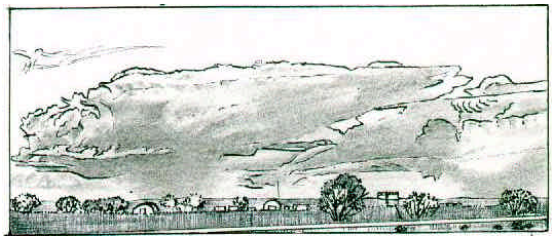


Figure 5: Looking SW at 2:43 PM CDT, E of Exit 299/I-70.

Several smaller but weaker anvils and towers were separated from and to the south of these two, while another anvil appeared to the north. Although the latter, at a distance, appeared larger I opted to stay with the earliest development near the city. Except for small, hard but high base towers going up on the south side, most of the Cb bases looked very soft and indistinct, with apparent "virga" (evaporating precipitation) above the ground. The cell closest to me (furthest east of the two) held my attention. As I drove under, a short line of hard, towering cumulus was building into the anvil, just north of the precipitation and apparent base (Fig. 6, from memory).

I continued west and around the north side of Denver, since this development still looked small, although quite striking (sharply defined and solid). Intending to continue north to the Cheyenne area, where I thought the greater dynamics were, I stopped one more time on the north side, at a Holiday Inn near Northglenn, and looked back. There, indistinct between two rain shafts but barely silhouetted to the distant south was an apparent wall cloud. At this time, the higher cloud bases overhead looked very turbulent, as larger, heavier Cbs formed and moved easterly off the mountains. Cloud to ground lightning was moderate and visible even at a distance and in daylight. Looking back at Cheyenne and assuming I would live to regret it, I played a hunch and headed back south, around the north loop, and back east on I-70. The original easternmost anvil had now grown some, but was still short and narrow by Texas or Oklahoma standards (Fig.7, satellite photo reproductions). At 3:17 PM CDT, I stopped just west of Stapleton airport to photograph a solid, vertical tower building into this anvil, on the north side of the rain area (Fig. 8). The tower was very hard, gray (in the anvil's shadow) and seemingly isolated from other lower level convection, which was almost absent around it.

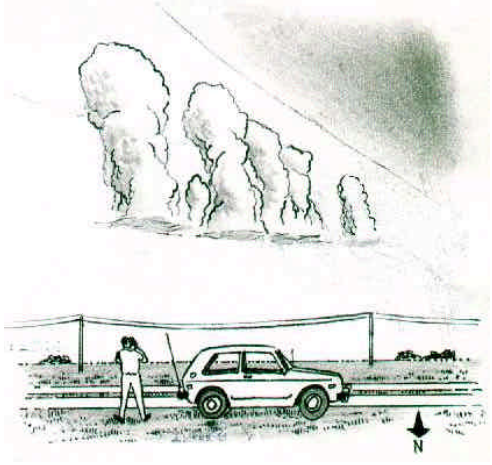


Figure 6

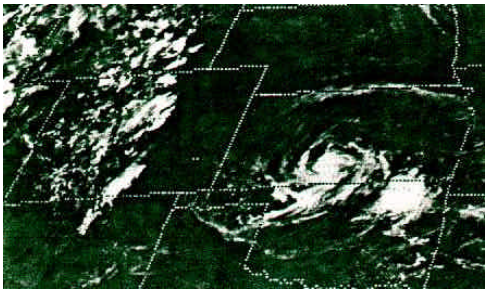


Figure 7A: May 14, 1984; 1931Z (2:31 CDT)

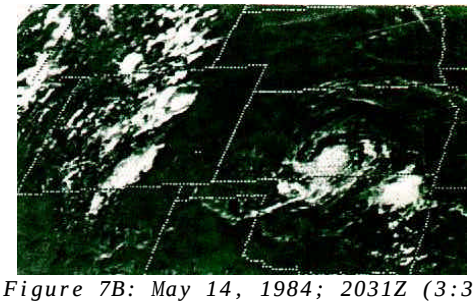


Figure 7B: May 14, 1984; 2031Z (3:31 CDT)

In Texas, I wouldn't have paid much attention, except this was the only developing part of the cell. The south flank appeared to have rained out and looked soft. Also, a smooth furrowed channel ringed the tower's top, where it entered the anvil. In fact, this is what first caught my attention. Within a few minutes, I saw a thin, almost transparent dust tube from ground to cloud base under the new tower. It was at a slight angle to the horizon, very much like a central plains tornado "roping out," under the southwest flank of a Cb (cumulonimbus) and stretching southeastward, ahead of the rear flank downdraft. Except, in this case, the rope was apparently stretching northwestward, under the northern flank, and beneath an anvil shearing to the north over it (Fig. 9).

Except for the anvil, you could have turned everything around 180 deg and it would have looked

Figure 8

just right! I was unable to discern the direction of rotation, as I rapidly drove toward it, stopped for pictures, drove, stopped, etc. Toward the latter stage of its 3-4 minute life, the vortex base developed a more significant dust sheath (Fig. 10). Within a minute or two of its demise, I drove to the Watkins interchange (16 miles east of Stapleton) and about one mile south of its earlier apparent location.

Figure 9

The cell base overhead exhibited no obvious, remnant signs of rotation or concentrated lowering, other than scattered small nodules. While looking almost straight up, half of the base (mostly eastern side) was obscured by high level precip, but the edges remained distinct -- and the base was still essentially rainfree. Only southerly winds were encountered, with light rain (large drops), no hail, no cloud to ground lightning (this cell) and no apparent outflow-gustfront. I wondered then, and still do, if this rotation had been anticyclonic. It did cause slight damage to a farm, removing some siding -- that was about it.

While returning to Denver, 4-5 local radio stations were continuously monitored but, nothing was said about the tornado. The high cloud bases were more stable looking now; seemingly, the whole air mass had now changed. This despite the fact that heavier convection and darker clouds were now passing over onto the Colorado high plains. After trying futilely to raise a "Smokey" or a local "REACT" group on the CB's channel 9, I stopped again at the Holiday Inn (about an hour later) and phoned my report to the Denver police emergency number.

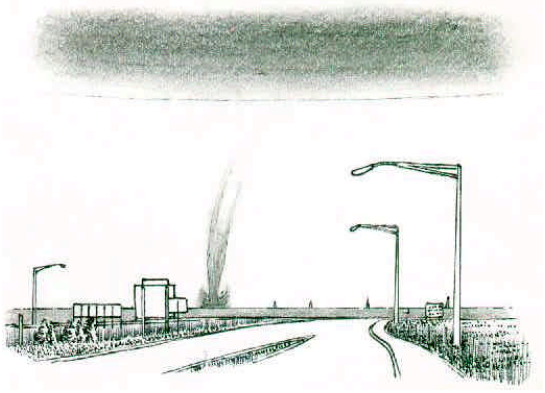


Figure 10

The officer at the other end indicated no other reports on this tornado. --- I continued on north to southeastern Wyoming, as anvils quickly covered the eastern half of Colorado. Current radio reports were closely monitored while driving north, but no additional severe weather or boxes were indicated. (Later that night, I did find out that Denver airport had received a pilot's report on the tornado). While gaing through Wyoming and just ahead of a building storm, several local-county warnings were received. However, these cells looked like hailers and I didn't linger to wait them out.

It was a very interesting storm, only my second tornado in Colorado but first along the front range of the Rockies (ergo the additional illustrations and copy for this account). It was fascinating to watch

the cells approach, in seeming disarray, across the mountains and -then- become organized over the plains. I hope to have this opportunity again.

The next several days took me into scenic Wyoming, the Black Hills of South Dakota, and back to Norman. The last week was quiet, and I welcomed the arrival of my daughter, Sarah (10), at Will Rogers Airport for her first storm chase. That Thursday, May 24, we charged out to western Kansas and got into the corner of a tornado watch, mostly in northern Colorado. We did see a rapidly building Cb in the Kansas end of the box, which was exciting. While approaching it, Sarah looked over her shoulder and called out in surprise at a new tower going up behind us, where minutes earlier there had been none. Although neither cell produced anything severe, it was a good first lesson on how fast things can change when the atmosphere is unstable. The next day, May 25, we chased east from Dodge City to Joplin, Missouri, where we finally cleared the cold front and got into another tornado box. We were right at the start of the watch and well located for beginning convection at its southwest end. Again, cells went up fast with hard, dramatic towers, but rained out early. We chased from cell to cell and finally caught, a weak wall cloud south of Springfield, before heading home. A stopover and ride up the Gateway Arch in St. Louis was a nice diversion, and the most excitement her dad had had since the Childress ant attack or the Denver tornado. -Some spring!

One note: Sarah was warned about the long, tedious hours of driving, so she brought along four books to read. When these were finished early in the trip, she commented on the long highway hours, and added, "Dad, I want to go with you again next year, but I'll have to bring more books." ... How true, how true.

- - -

In future issues of ST, look for accounts of last year's Medicine Lodge, Kansas and Plainview, Texas tornadoes; representative prices that chasers ask and receive for their pictures; the WARN facility and capability in Oklahoma; the enhanced operational coordination and cooperation between Oklahoma's NWS services and the media during severe weather season; a short account of some recent Virginia tornadoes ("Yes, Virginia ..." they are here); the Abysmal Storm Chase and more.

- - -

Addendum: "Rocky" Rascovich, O.U. student chaser called with a late chase report just before ST went to press with the May issue (publication delayed due to the Editor's own annual chase trip). Rocky was in northern Iowa on fateful June 7, 1984 when that state, Minnesota, and Wisconsin (Barneveld) suffered an historic tornado onslaught. He was 115 miles east-southeast of Sioux Falls, when the first tornadoes began there, which then spread and multiplied rapidly eastward. He described limited visibility and low clouds, 800 - 1,500 ft, moving rapidly from the south beneath skies darkening ominously from red to green to dark gray. Twilight turned to darkness as headlights went on at 4:30 PM (!) on the high plains. Bases were indistinct, except as occasionally picked out by jagged streaks of strangely "pink" lightning. And, just to cap this surreal experience, Rocky heard a local tornado warning on his van radio, even as a continuous rumbling of thunder or roar of something else (?) filled the air at (Yes) Cylinder, IA! Thereafter, tornadoes were reported in just about every direction, but the pervasive darkness limited his view. He saw no tornadoes but did photograph a strong, flanking line with 40,000 ft towers that blew up in 40 minutes over (Yes, again!) Storm Lake, IA. Hey, Rocky, come on! Cylinder and Storm Lake? Rotating bases were subsequently photographed near Filmont and, on Friday, near Emporia, KS, where small, twisting vortices were continually forming and breaking away underneath.

Mr. Rascovich had a big week -- last. One thing he did learn: what it was to sense fear that early night in Iowa. He found his storm and drove as far as he dared into that approaching, strangely-colored and boiling darkness before stopping to look, listen and reconsider: the better part of wisdom. He had the good sense to back off a little, as an immeasurable fate passed close-by. A veteran chaser comes of age.