

I. COMMENTARY

Thank you! I have received several articles and much encouragement from readers to continue with Storm Track. I shall! Some of the helpful suggestions that were received include follow-up mailings of reminder notices for subscription renewals, a letters to Editor section, and broadening of Storm Track to include other weather phenomena such as personal encounters with blizzards, floods, etc. Regarding the latter, ST does encourage interesting stories of hazardous or novel weather encounters in addition to tornadoes and severe thunderstorms (e.g. a recent article on photographing the Green Flash). Also, don't forget article ideas on the "foolers" - when you had psyched out just what the storm would do, and -instead- it turned around on you and did the opposite. ST's primary focus will continue to be the tornadic thunderstorm, but other interesting weather encounters are encouraged. (Editor's Note: If you occasionally stumble over some mis-spelling or syntax omissions in ST issues, please feel free to pencil in the correction or whatever makes sense. These are often late night issues, and the Editor isn't always fully awake.)

II. ROSTER

III. LETTERS TO THE EDITOR



"Dave, please don't be discouraged about ST we do appreciate it, ... I suspect many people (like me!) would appreciate a subscription 'renewal notice' ... we really need the reminders. My chase season was a mixture of extreme 'highs' and 'lows.' Al Moller and I went out on May 22 and saw 9-10 tornadoes from the same storm. Our photography was only mediocre, but the storm was so outstanding, we got some decent pix, anyway. The next day we saw two more tornadoes, then nothing for the remainder of the two weeks!!! (May 22 was our first day out!)" ----- Chuck Doswell

Your recent ST issues have continued to be interesting to me, but, authorship does need to expand. I'm not an active chaser but interested from a mesoscale, photographic and general interest perspective. I think one topic ... could involve the strategy of chasing. It seems to have gotten better, but I've seen no manuals, etc. on the topic. What a chaser does when confronted with a storm, a road map and a car for the rest of the day (either idealized or a case study) could be very interesting for all. I think, in particular, there are insights and cloud growth ideas that, develop from these experiences that have common application and could be useful to a number of severe storm fields." --- Ron Holle

IV. BULLETIN BOARD/COMMERCIAL MARKET - \$- FOR PICTURES

V. CAMERA TIPS

VI. TRAVEL TIPS

FUNNEL FUNNIES

VIII. FEATURE - The Thunderstorm Heatburst Case of 9 Oct 1805 [by John Weaver]

While the tornado is undoubtedly the most fascinating feature associated with a severe thunderstorm, it is definitely not the only such event. Rotating wall clouds, outflow configurations and giant hail form but a portion of a set of events that lend extra dimension to most successful intercepts. Another such phenomenon is the thunderstorm heatburst.

A thunderstorm 'heatburst' is a sudden warming and drying at the surface; in the vicinity of a strong thunderstorm. One theory on its origin suggests a compensating subsidence external to the storm, which drives air downward from high in the troposphere. In this theory, the air warms adiabatically as it subsides (which it would) and carries with it the low absolute moisture from aloft. Regardless of its origin, the heatburst phenomenon has been recognized for some time. Dr. Isaac Cline (Mon. Wea. Rev., July, 1909), in his monthly weather summary, describes an event which occurred at Cherokee, Oklahoma on July 11, 1909.

Between one and three A.M., the temperature soared suddenly to 136 deg F with gusting winds. Vegetation in the area was seriously damaged by the heat. While witnesses apparently made no mention of nearby thunderstorms at the time, it is highly likely that, in 1909, such a coincidence would not have been considered important. Large, external circulations associated with thunderstorms had not been seriously postulated at that time, and lightning in the far distance would probably have been considered extraneous to the report. One may speculate that if the event was actually a heatburst, the air must have originated near 200 mb. With the high summer tropopause, interaction at this level is certainly possible.

More recent studies confirm the existence of heatbursts. Williams (U.S. Wea. Bur., 1964) documents several such events. On May 25, 1962, near Oklahoma City, Oklahoma, the temperature jumped from 72 to



91F and the air dried 1.4 g/kg as thunderstorms passed through the area. At 11 P.M on May 5, 1962, a storm near Wichita Falls, Texas brought with it a 20 deg F temperature increase. These and other heatbursts discussed by Williams traveled through well-instrumented regions where little doubt could be cast on their meaning. As further confirmation, the author was privy to a heatburst on the evening of May 29, 1976 while nowcasting for the National Severe Storms Laboratory Intercept project. I had stepped outside to make a visual observation on a storm about 20 miles to the southwest. It was dark, a mild breeze was blowing (76 deg F, winds light southeasterly) and the storm could be seen by illumination from moderately frequent lightning, although the storm was far enough away to prevent hearing thunder. I had been outside only a few minutes when the wind shifted to strong westerly, the temperature rose to 92 deg F and the air dried sufficiently to physically sense the change. Needless to say, that was the last thing I expected to occur. It took several moments to realize what had happened. Since then, I've made an effort to speak with other chasers about heatbursts, and usually as soon as I bring up the subject, there appears a look of recognition and a story. (For example, Texas Tech chaser Eric Rasmussen tells me that he was in the Wichita, Kansas heatburst which was responsible for the all-time midnight high temperature at that location; 102 deg F).

Recently, I stumbled upon what may be the first documented account of a heatburst. I ran into the account in the book 'Sacajawea' by Anna Lee Waldo (Avon Books, Hearst Corp., New York, 1978). The book is an accurate and well-documented re-creation of the Lewis and Clark expedition to the Pacific, with attention centered on the powerful personality of the title character. The facts are substantiated by a bibliography of nearly two hundred works. Many of the incidents are taken directly from the journals of the famous explorers.



In October of the year 1805, Lewis and Clark were traveling westward through an area later to become the state of Idaho. October ninth found them canoeing along the Clearwater River, nearing its junction with the Snake (at what is now Lewiston, Idaho). It was late in the afternoon, the winds had become calm, and even the waves had quieted completely. Suddenly, 'a violent, unexpected gust of wind hit the canoes.' Sacajawea actually gasped out loud from its heat, and Captain Clark was similarly affected. The hot wind continued for some time, then a solid mass of black clouds became evident as a thunderstorm covered the sun. (Thus, I believe the storm was probably still at a moderate distance, since the sun would have been fairly low on the horizon. Further, the account -at this point- mentions 'dull flashes of lightning' and the sound of 'faraway thunder.') As the canoes made for the shore, 'scorching gusts' came from the direction of the storm. Then, the record offers a final teaser for the modern storm chaser as it concludes by describing 'The clouds piled one on top of the other until they were black with their own shadow. In the center was a strange, airy space that was like a hole in the heavens.'

I believe the Lewis and Clark account constitutes a convincingly genuine description of a thunderstorm heatburst. If so, it is the earliest detailed testimony of which I am aware. Furthermore, there is sufficient description to make a reasonable guess at what the temperature might have been (speculative, of course, but what better place to speculate than Storm Track?). I lived in Oklahoma during the summer of the 1980 heat wave and have been in the Imperial Valley, California when the official (shade) temperature was given to be 121 deg F. I'm sure many readers have also experienced extreme temperatures. My experience shows that while a 108-110 deg F wind (Oklahoma) feels decidedly uncomfortable, it is not what I would call 'painful' (This was upon walking out of an air conditioned home). A gust that I encountered at 121 deg F in California was. Realizing there are many variables involved in such subjective statements, I -nevertheless- believe (from the Lewis and Clark descriptions) that the 1805 case must have produced temperatures in excess of about 110 deg F - and could easily have been closer to 120 deg F. If anything, it would seem to me that my controlled-environment, twentieth century life style should make me more sensitive to heat than any of the explorers involved in this encounter.

If any of the readers have accounts of heatbursts, I, for one, would enjoy hearing about them in the Letters to the Editor section. I'd also like to know if any of you run across earlier accounts of the phenomenon. "