of the lake bed and left the car, intending to walk out to the water. The moment we dropped down onto the white salt surface the water disappeared. We walked out nearly a mile. There was no sign of water. The glaring white salt beds seemed to stretch away for miles, far in the south mountains floated in the air upheld on their inverted images. We gave it up at last. The lake had been a mirage, of course. From the car it was again visible and as we climbed up the steep grade it took on the same outlines we had first seen. Stopping the car at the crest of the hill, we walked south along the ridge for half a mile. The lake seemed immovable and of exactly the same shape. It was a mirage, of course, but I wanted to be sure, so climbed down the hill again, across a mile of sand dunes, lake still there, and down onto the salt, and there was no lake—just the mocking distant mirage. I walked out for three quarters of a mile. Underneath the salt crust there is a black alkali composition, greasy. It got softer as I went out, walking was very hard, temperature was 106 or more, not a breath of wind. I had to give it up. Coming back I passed a gasoline launch securely tied to a post fully a mile from the apparent water. The minute I was back on the dunes there was the lake. Fellows who had watched me from the top said I had gone but half way to it.

"We were getting short of time so turned back to Calexico. Stopping at the office of the Imperial Irrigation District there, I talked with Mr. Maddox, the assistant engineer. He said that there was almost certainly water in the Laguna Salada and just about where it had appeared to us to be, and not to be, as that was the lowest part. Apparently it was water. The white salt surface seems to have created a mirage of its own, and hidden the water."

SMALL TORNADOES NEAR CHEYENNE, WYO.

By GEO. W. PITMAN.

[Weather Bureau, Cheyenne, Wyo., June, 1923.]

Two small storms, evidently tornadoes, occurred near Cheyenne, Wyo., on the afternoon of June 2, 1923. The one that passed about 2½ miles to the southeastward of the city was seen by dozens of people, some of whom became much excited.[1] When first observed the funnel was at an altitude of about 40°, probably 45°, almost directly southeast of the local office. This was at 2:55 p. m., local time, and it had then the appearance of a long needle extending straight downward from the clouds, which soon assumed the shape of a long radish or carrot about 40 feet long and 2 feet in diameter, dangling from the clouds above. The storm moved north-northeastward over a path about 10 to 30 feet wide and about 3 miles long. At 3:10 p. m. the funnel was about 10° long, the bottom not reaching the ground, and the top approximately 35° above the horizon, and at 3:16 p. m. the clouds were apparently quiet. The funnel changed its appearance several times during its march. During the first and last parts of the storm it looked like a long smoky-black pillar standing almost vertical and reaching from the clouds to the earth. At another time when about one-third way in its march, it had the appearance of two cones set point to point, the bottom cone being nearly twice the size of the upper one and moving about 5° or 10° in the rear of the upper part of the upper cone.

As the storm moved over open country, the only damage was gaps torn in a few fences. At one point a barbed wire was wrapped six times counter-clockwise around a post and an end about 15 feet long left dangling. A light southwesterly wind of 13 miles an hour prevailed at the local office during the passing of the storm. A special observation at the time showed a barometer reading of 29.78 inches and a temperature of 70°, with a temperature of 73° at 2:00 p. m., and the temperature returned to 73° at 4:00 p. m. The barograph trace showed a gradual fall of 0.03 inch from 2:00 p. m. to 4:00 p. m. there being no surge whatever. A light sprinkle fell for about 15 minutes previously to the forming of the funnel, but very little during its passing, and the few drops of rain and hail that then fell were quite large, averaging from filberts to English walnuts in size. The first thunder heard was about the time or a little after the formation of the funnel and was apparently nearly overhead. The clouds immediately preceding the thunder were a smoky-black strato-cumulus type, with many individual clouds that gathered quickly, and a background of lower clouds, but higher, of a gray color. (Some state greenish but the writer saw no green.) No peculiar noises were heard, but these may have been counteracted by the railroad yards that lay in the southeast part of the city.

Another storm preceded this one by a few minutes. The few who saw it stated it moved east-northeastward over a path about 10 miles long and less than 40 feet wide, breaking up in the low hills about six miles northeast of Cheyenne. This storm also had a well defined funnel. It struck the barn on the Ever's ranch, doing about $200 damage.

TORNADOES IN NEW MEXICO, JUNE, 1923.

CHARLES E. LINNEY, Meteorologist.

[Santa Fe, N. Mex., July 16, 1923.]

Two small tornadoes occurred in the State during the month of June, 1923. The first, on the afternoon of the 7th, was observed at the ranch of Mr. A. R. Gray, 6 miles southeast of the village of Moriarity, Torrence County, N. Mex. The day was reported very cloudy, with rain to the west and a hard east wind during the forenoon. A cloud, which seemed to be different or separate from that from which the rain was falling, came up from the southwest at 1:35 p. m. Apparently there was no thunder, lightning or rain, but the pendent-shaped cloud was plainly visible and it left a plaster of mud over everything in its path. It traveled a distance of 7 or 8 miles, hit one farm house (country is very thinly settled), that of Mr. Gray, destroying it, with all household goods and some outbuildings. The loss is given as about $2,000. Mr. Gray reports that he only saw it strike the ground twice before it reached his place, when it moved on the ground for about a half mile. Hail occurred to the west of his place and a hard rain in the foothills far to the west.

The second storm occurred at Roswell on the afternoon of the 8th.

It has been the opinion of the people of the State that tornadoes do not occur within its confines, but two (or more) well-defined tornadoes were reported last year and thus far two have occurred this season, so that public opinion is in error in this matter.

(See following account by Mr. Cleve Hallenbeck.)

[1] Mr. Pitman's account of the two tornadoes observed near Cheyenne is welcomed, since it shows, first of all, that these storms in the dry regions of the West are much like overgrown whirlwinds and have none of the destructive characteristics of those which occur in more humid climates. The occurrence of similar storms in eastern Colorado and eastern New Mexico seems to fix definitely the western limit of tornadic storms along the eastern foothills of the Rocky Mountains.—EDITOR.

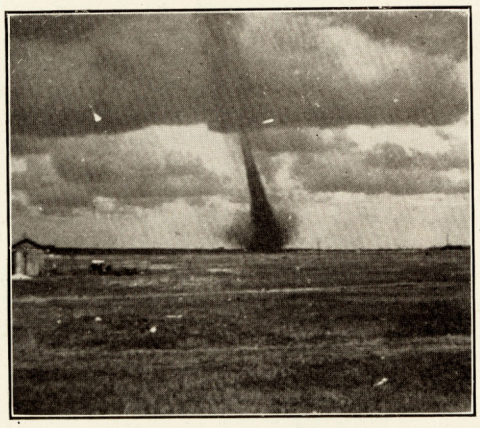

FIG. 1.—Tornado near Cheyenne, Wyo., June 2, 1923, from a point 1½ miles distant.

FIG. 2.—Tornado near Cheyenne, Wyo., June 2, 1923, taken by a camper.