off again in another rush. Furthermore, an electron suitably situated for the formation of branch will run away from the bolt into an ever-decreasing field, a condition adverse to the formation of a powerful dart. If branches occur they will probably be very few and weak, except in the neighborhood of a temporary or permanent halt. There the field becomes exceedingly great, and thence branches may radiate in many directions. Star-like branching is observed and has been photographed, but whether it is real or the result of extreme foreshortening, the direction of the main trunk being very straight and coinciding with the line of sight through the center of the star, I am unprepared to say. Such a star may be seen to the left in the photograph published by Doctor Hoffert in 1890.[5]

[5] Hoffert, H. H.: Proc. Phys. Soc., 10: 176–179, 1890; Boys, C. V.: Nature, 118: 749, 1926.

Types of lightning that can not be satisfactorily explained by an extension of the dart hypothesis probably exist. For example, in multiple strokes those subsequent to the first probably involve much lower field intensities and are more like ordinary discharges through an ionized gas; ball lightning seems certainly to require a quite different explanation. In order to disentangle the various types it is necessary to study in detail actual flashes and their effects. These must be studied individually and be carefully classified. To bunch them and to discuss average effects will get us nowhere. In this study the effects of minor strokes are of great value, as they will probably yield more detailed information than can be obtained from those of the more spectacular ones. The latter are likely to be complicated by secondary effects, and precious evidence may be destroyed by the violence which characterizes them.

TORNADO OF JUNE 3, 1927, NEAR TOPEKA, KANS.

By S. D. FLORA, Meteorologist

[Weather Bureau, Topeka, Kans.]

A small tornado struck the southwestern suburbs of Topeka one-half mile southwest of the Country Club, about 4:40 p. m. of June 3 and traveled slightly north of east for a distance of 2½ miles before its last damage was done. The long, pendant cloud was sighted 3 miles east of its origin, but apparently did not reach the ground after traveling so far. The path of destruction, which was well defined, was about 100 feet wide.

No one was injured, and the total property damage was estimated at $400. A house near the point where the storm first struck had its roof badly damaged, and the barn, about 50 feet west of the residence, was wrecked, parts of it apparently being carried entirely over the residence and distributed over a field in the east. Some of the wreckage landed in a tree top just east of the house.

The storm passed over the southern outskirts of Topeka with very little damage, except that just noted, and slight damage to a greenhouse, to a few shade trees, and an occasional outhouse.

The storm followed a light fall of hail and came with a terrific roaring. The characteristic cloud of the tornado was seen by a number of persons.

A curious freak of the violence of the wind was a 2 by 4 pine rafter of a barn that was driven entirely through the siding and 2-inch wall of a near-by house without any battering of the pointed end of the rafter.

TORNADO AT AUBURN, KANS., JUNE 3, 1927

By EDWARD C. CORKILL, Junior Observer

[Weather Bureau, Topeka, Kans.]

The small tornado which struck Auburn, Kans., a small town about 18 miles southwest of Topeka, was seen to form about 1 mile west of Auburn by two clouds, one a black one coming from the north and a nearly white cloud coming from the south. When they met they began to whirl and turn to a dark gray color, making a very loud roar, and move eastward very rapidly.

From this cloud two distinct funnel-shaped clouds were seen to emerge and strike the ground and pick up several small trees and brush that was piled; one of the trees was carried for over a mile before it was dropped. When the tornado hit a timber about one-half mile west of Auburn it uprooted about a half dozen elm trees, varying from 12 to 24 inches in diameter, and one was split in the center for about 12 feet—this due to the twisting motion.

From here the funnel-shaped clouds lifted for a moment, but dipped to the ground again, striking a steel windmill and twisted the wheel around the tower so that it had to be removed for repair. They broke several shade trees and tore shingles from houses on either side of the street, but did not disturb the trees growing close to the street, showing that the two funnel-shaped clouds traveled in very nearly parallel courses about 100 to 150 feet apart.

Each of the funnel-shaped clouds was about 50 to 100 feet in diameter at the lower part and seemed to dip to the ground at about the same time. The third time they struck the north one tore shingles off of the school building and tore an entrance hall to the basement off, blowing it into five sections, and was seen to hurl it into the air about 75 feet before dropping it. Two or three small buildings around the school building were wrecked, also several large maple trees were broken off by the south funnel-shaped cloud.

Thence the path of the funnel-shaped clouds was through an orchard and to a farmyard where the south one completely wrecked a barn, but hurt none of the six head of livestock which were all in the barn. The stall in which one horse was tied was all that was left standing. Most of the roof was hurled into a hedge fence, which was partly uprooted.

The storm was accompanied by a terrific roaring and heavy rain but very little hail. The time of occurrence was about 6:30 p. m., and the tornado clouds lasted for only a few minutes before they united and dissipated about one-half mile east of Auburn. The course was a little north of east. The total damage was estimated at about $1,000. No lives were lost and no one injured. One peculiarity of the tornado was that the two funnel-shaped clouds emerged from the same cloud and struck at about the same time.