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TORNADO LOSSES AND INSURANCE.

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Constancy of Tornadoes.

It is an exceedingly important question to determine, if possible, whether tornadoes are on the increase, or whether we may reason from their occurrence in the past as to their probable action in the future. The tendency is to take serious alarm when a tornado has happened near a community, and to conclude at once that the risk has suddenly become very much greater than before, and is likely to continue. We may cite as an instance the alarm in a good many minds after the occurrence of the recent Louisville tornado. Notwithstanding the fact that this was the first serious tornado in Kentucky, and that in all probability another such would never occur there, certainly not in Louisville, yet many seem to have thought that a change had come in the climate, and we were now to have more of these outbursts. A careful study has shown that such fears are groundless, and that our climate is practically constant. We may strike an average of tornadoes in the past, and reason that there will be no more than that average in the future. In fact, if we include 1883 and 1884 in our average, we know that it will be too great, for a very large number of tornadoes occurred in those years. It is to be noted that the reports of tornadoes must necessarily increase as houses increase in the tornado States, but this will be balanced by the fact that fire losses will also increase. It is perfectly safe for us to compare fire and tornado losses, and to determine approximately what the comparative premium should be.

The accompanying table shows for the years 1876–84, in the seventeen tornado States, the total loss by tornadoes of scale (3), (2), (1); the loss by fire during the same years; and the relative loss by the two.

Tornado and Fire Losses in Seventeen States, 1876–84.

	Number.			Loss.		
	(3)	(2)	(1)	Tornado.	Fire.	Tornado / Fire.
Alabama	1	30	8	$704,000	$6,169,000	1-9
Arkansas	3	21	18	754,000	6,419,000	1-9
Georgia		54	32	1,176,000	14,083,000	1-12
Illinois	4	77	87	2,601,000	38,060,000	1-15
Indiana	1	42	30	1,005,000	22,981,000	1-23
Iowa	3	42	50	1,730,000	14,821,000	1-9
Kansas	2	77	68	1,944,000	6,108,000	1-3
Michigan		24	18	534,000	30,583,000	1-57
Minnesota	2	20	23	1,069,000	18,752,000	1-18
Mississippi	4	21	15	1,085,000	5,479,000	1-5
Missouri	7	61	45	3,250,000	27,129,000	1-12
New York	1	34	33	859,000	124,767,000	1-145
North Carolina		18	11	393,000	6,486,000	1-17
Ohio	2	42	35	1,225,000	41,496,000	1-34
Pennsylvania		22	22	506,000	69,869,000	1-138
South Carolina	1	24	12	716,000	7,747,000	1-11
Wisconsin	3	39	33	1,529,000	21,375,000	1-14
Total	34	648	540	20,080,000	462,324,000	1-23
Total, omitting Pennsylvania & New York	33	592	485	18,715,000	267,688,000	1-14

The tornado loss in this table has been rigidly computed from the actual estimated loss for scale (3), and allowing $20,000 each for (2), and $3,000 each for (1). There is no doubt that this loss is more than ten per cent too great. It should also be remembered that during the two years 1883 and 1884 there were as many tornadoes as in the remaining seven, and in the sixteen years thus far studied this is very nearly the relation. There are several most astonishing facts brought out in this table, and such as are very difficult to understand. Perhaps the most surprising result is that in Kansas the tornado loss is one-third of that by fire. I have gone over the data, and can find no flaw. All the tornado reports from the different States were treated exactly alike, and the result for any one State may be compared directly with that for any other. In Nebraska, a neighboring State, the tornado loss is insignificant, not more than one-twentieth of that by fire; and in Missouri it is one-twelfth of the fire loss. Of course, where no estimate of the loss is given, as is the case in more than half the occurrences, the position in the scale is dependent on the reported violence of the tornado. I am inclined to think that Kansas has had