JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE
Volume 30, Number 3, July, 1955

EARTHQUAKES IN TENNESSEE AND NEARBY SECTIONS OF NEIGHBORING STATES — 1851 TO 1900

BERLEN C. MONEYMAKER

Tennessee Valley Authority, Knoxville, Tennessee

INTRODUCTION

In a previous paper[1] the writer presented an account of the seismic history of Tennessee and its immediate environs from 1699 to 1850. The interest which has been expressed in that contribution, in particular, and in the earthquake history of Tennessee, in general, has encouraged the writer to prepare the present paper as a second installment of the seismic history of the region. Although the emphasis is placed on Tennessee, the nearby sections of neighboring states cannot be ignored. A majority of the earthquakes which have affected the state in historic time have been centered in other states.

The selection of individual earthquakes for inclusion in the present contribution required the screening of voluminous records and involved numerous considerations. As the paper is intended primarily as a contribution to the seismic history of Tennessee, it includes all earthquakes known to have been felt in Tennessee from 1851 to 1900, inclusive. In addition to these, it includes numerous other earthquakes which may have affected some part of the state. The latter earthquakes were selected for inclusion on basis of the following considerations: (1) the distance from the Tennessee State line to the nearest locality at which a given earthquake shock was felt; (2) the intensity of the shock at that locality; and (3) the apparent similarity of a given earthquake to more recent earthquakes whose affected areas are much better known. Some of these earthquakes are reported from a single locality; others are reported from a few widely separated localities. Through the examination of old newspaper files the writer has been able to establish additional localities in the affected areas of some earthquakes not previously known to have been felt in Tennessee.

The several earthquakes known to have affected Tennessee and the surrounding territory in other states are summarized individually in the following paragraphs. They are arranged in a chronological sequence based on the dates and times given in the published source material. The attempt has been made, using all the information available, to assess the maximum degree of intensity of each earthquake in terms of the Woods-

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[1]**Some Early Earthquakes in Tennessee and Adjacent States (1699 to 1850). Journal of the Tennessee Academy of Science, Volume 29, No. 3, July, 1954, pp. 224-233.**

Neumann Scale, on which the maximum degree is XII. The intensity, indicated by the Roman numeral at the end of the caption line, may be too low, especially in the case of any earthquake reported from one locality, or a few localities, at unknown distances from the epicenter.

The Arabic numerals at the end of each summary refer to the references listed at the end of the paper.

The Earthquakes

1855, *May* 2, 9:33 *p.m., Mississippi Valley (IV-V)*

An earthquake felt at Cairo, Illinois. Houses were shaken "tremendously." (6)

1855, *May* 3, 4:00 *a.m., Mississippi Valley (III-IV)*

Two shocks, about five minutes apart and each lasting about five seconds, felt at Cairo, Illinois. "The vibratory motion and the rumbling noise were distinctly felt and heard throughout the town." (6)

1856, *November* 9, —, *Mississippi Valley (IV-V)*

Earthquake shocks felt widely in the Mississippi Valley. Localities in the affected area include Cairo and DeSoto, Illinois; Paducah, Kentucky; and Memphis, Tennessee. An observer at DeSoto reported that his house "rocked violently." (6)

1857, *October* 8, 4:00 *and* 4:07 *a.m., Mississippi Valley (VI-VII)*

Two strong shocks at St. Louis, Missouri, and three shocks at Centralia, Illinois. Felt at numerous localities in the Mississippi Valley south of Hannibal, Missouri. The southern limit of the affected area is unknown, but there is a strong probability that the shocks were felt in Tennessee. At St. Louis, near the epicenter, large buildings rocked to and fro, bricks were dislocated, plaster fell, furniture shifted, and loose objects toppled from shelves. The "river was in tumult, and animals were frightened." (2, 5, 6)

1861, _____, *eastern Tennessee*

A shock near Rutledge in Grainger County, Tennessee. The shock is described in a letter by S. J. Norton as "a great earthquake," but no details are given.
U. S. Coast and Geodetic Survey card file.

1865, *August* 17, 9:00 *a.m., Mississippi Valley (VII)*

A strong earthquake felt widely over the Mississippi Valley in Tennessee, Missouri, Illinois, Kentucky, Arkansas and Mississippi. The vibrations were especially strong at Memphis, where chimneys were thrown down, and at New Madrid and St. Louis. Other localities in the affected area include La Grange, Tennessee, Holly Springs and Grenada, Mississippi, and Du Quoin and Springfield, Illinois. (2, 5, 6, *American Journal of Science*, vol. XL, 1865, pp. 273; 362-364)

1865, *September* 7, 8:15 *a.m., Mississippi Valley (III-IV)*

"At a quarter past 8 o'clock this morning, the 7th, we had another shock, shaking houses &c. considerably. It was not accompanied by much noise—came from a westerly direction, and lasted about half a minute." Reported by John T. Scott in a letter. (*American Journal of Science*, 2nd Series, vol. XL, 1865, p. 364)

1867, *April* 24, 3:00 *p.m., eastern Kansas (VII)*

A strong earthquake felt over a very large area which included all of Missouri and parts of Illinois and Indiana. Parts of Kentucky, Arkansas, and Tennessee probably were affected also. (2, 5, 6)

1871, *July* 24__, *Mississippi Valley (III)*

A light shock at Cairo, Illinois. (6)

1872, *February* 8, 5:00 *a.m., Mississippi Valley (IV)*

A light shock lasting about 20 seconds at Cairo, Illinois. An observer who experienced the shock in bed on the second floor of a brick house reported: "It seemed to me that something struck the head of my bed with considerable violence from the southeast, making quite a noise and shaking the entire house. The shaking continued for several seconds with varying intensity." (6, 8)

1872, *March* 26, *"a.m.," western Kentucky (III)*

A light shock at Paducah, Kentucky. (6, 8)

1872, *April* 20, 2:00 *a.m., Mississippi Valley (III)*

A light shock at Memphis, Tennessee. (6, 7)

1872, *August* 20, ___, *Mississippi Valley (II-III)*

A shock at Memphis. "No damage." U. S. Coast and Geodetic Survey card file.

1873, *May* 3, 3:00 *p.m., Mississippi Valley (III-IV)*

Two "severe" shocks with "waves north to south" felt at Memphis and throughout Gibson and Carroll Counties, Tennessee, and at Cairo, Illinois. (6, 7, 9)

1873, *August* 22, 1:00 *a.m., Mississippi Valley (III)*

A light shock at Memphis, Tennessee. (6)

1874, *February* 10 *through May, western North Carolina (II-VII)*

A series of 50 to 100 sharp local seismic shocks, accompanied by explosive noises. "There began a series of disturbances in Bald and Stone Mountains, McDowell County, North Carolina, which continued at intervals for several months. The phenomena appear to have been occasional earthquake shocks, at no time violent, but accompanied by explosive and rumbling noises and occurring sometimes two or three a day, and again with intervals of several days. These increased in frequency and intensity until the night of February 22, when the most severe shock was

felt. About March 17 and 26, the shocks were again of some intensity, as also on April 14 and 17." One observer reported a strong shock with a deep rumbling noise about sundown on March 18, and another on March 19. Another observer described the noise as resembling "the report made by blasting in a deep quarry or well, at first explosive then reverberating." The shocks were reportedly most strongly felt near the top of the mountains, but could be felt 10 to 15 miles farther. The area affected included portions of McDowell, Rutherford, and Henderson Counties. (1, 5, 10, 11)

1874, *July* 9, 4:00 *p.m., Mississippi Valley (III)*
Light shocks at Cairo, Illinois. (6, 10)

1875, *June* 18, 7:43 *a.m., western Ohio (VII)*
A strong earthquake felt over an area of at least 40,000 square miles. It was most severe at Sydney and Urbana, Ohio, where chimneys were thrown down and walls were cracked. In addition to Ohio, the affected area is known to have included southern Illinois, southern Indiana, northern Kentucky, and eastern Missouri. The southern limit of the affected area is not known. (5, 6, 11)

1875, *October* 7, ---, *Mississippi Valley (III-IV)*
Light shocks at Memphis, Tennessee, and Cairo, Illinois. (6, 11)

1875, *October* 27, *"night," Mississippi Valley (III-IV)*
Three shocks, strong enough to rattle windows, at Memphis, Tennessee. One shock at 9:00 p.m. was felt at Purdy, McNairy County, Tennessee. As Purdy is nearly 80 miles east of Memphis, this light earthquake affected a large area which probably was not confined entirely to Tennessee. (6, 7, 11)

1875, *November* 1, 9:55 *p.m., northern Georgia (VI-VII)*
A moderately strong earthquake felt over an extensive area in northern Georgia and western South Carolina. It lasted about 30 seconds and was followed by several after shocks. (5, 11)

1875, *November* 12, 2:00 *a.m., southern Appalachians (III-IV)*
A shock lasting about 10 seconds at Knoxville, Tennessee. The vibration was from west to east, and was accompanied by a rumbling noise. (11)

1876, *September* 25, 12:00 *and* 12:15 *a.m., Wabash Valley (VI)*
Two heavy shocks, one occurring at midnight and the other about 15 minutes later, were felt throughout southern Illinois, southern Indiana, and northern Kentucky. The second shock was the stronger and seems to have been the most severe between Friendsville and Mt. Carmel, Illinois, and Evansville, Indiana. (2, 5, 6, 12)

1876, *December* 21, 10:30 *a.m., southwestern Virginia (III-IV)*
A shock at Wytheville, Virginia. (12)

1877, *April* 26, 5:00 *p.m., western North Carolina (III-IV)*
A light shock at Franklin, North Carolina. (12)

1877, *May* 25, ___, *eastern Tennessee (III-IV)*
A shock at Knoxville, Tennessee. (12)

1877, *July* 14, 6:40 *p.m., Mississippi Valley (III-IV)*
Two or three shocks rocked buildings at Memphis, Tennessee. The vibrations reportedly came from the west or southwest. (6, 7, 12)

1877, *November* 16, 2:20 *a.m., southern Appalachians (IV)*
A strong shock at Knoxville, Tennessee. "It differed from the shocks ordinarily felt, in that instead of approaching gradually, as it were, gathering in intensity and passing away in an inverse ratio, its greatest strength was manifested at the outset, which caused the walls of buildings to shake and windows to rattle ominously." The shock was felt also at Murphy, North Carolina. The time of the earthquake is reported differently in different references as 2:20, 2:30, and 2:38 a.m. (5, 12, 13; *Knoxville Daily Chronicle,* November 16, 1877)

1878, *January* 8, 10:30 *p.m., Mississippi Valley (III-IV)*
Two light shocks at Cairo, Illinois. (2, 6, 13)

1878, *March* 12, 4:00 *a.m., Mississippi Valley (V)*
A severe shock at Columbus, Kentucky, caused a section of the bluff along the Mississippi River to cave. (2, 5, 6, 13)

1878, *November* 18, 11:52 *p.m., Mississippi Valley (VI-VIII)*
A moderately strong earthquake felt over an area of 150,000 square miles in Missouri, Tennessee, Illinois, Kentucky, Arkansas, Alabama, and other states. The disturbance was greatest along the Mississippi River between Memphis and Cairo and was universally felt in this area. At Memphis, the vibrations were "heavy". At Cairo, where the disturbance lasted about 40 seconds, an initial trembling motion was followed by a rocking motion which, in turn, was followed by a second period of trembling. A second shock, much lighter than the first, was felt at 5:10 a.m. on the 19th. (2, 5, 6, 7, 13, 14, 15)

1878, *November* 23, 10:00 *a.m., southern Appalachians (III-IV)*
A light shock at Murphy, North Carolina. It was accompanied by a rumbling noise and appeared to move from west to east. (13)

1879, *July* 26, 11:45 *a.m., Mississippi Valley (II-III)*
A light shock of a few seconds duration at Cairo and Mound City, Illinois. (2, 6, 15)

1879, *September* 25, 9:10 *p.m., Mississippi Valley (III-IV)*
A shock lasting 6 seconds at Memphis, where the direction was northwest to southeast. Felt also at Gayoso, Missouri. At the latter locality, the sound appeared to be in the southwest and the vibrations to travel to the north. (2, 6, 15)

1880, *January* 28 *and* 29, *and February* 10, ___, *southern Appalachians* (II-III)
Shocks and rumbling at Bald Mountain, North Carolina. (16)

1880, *July* 13, 8:30 *p.m., Mississippi Valley* (*III-IV*)
A light shock at Memphis, Tennessee, and Gayoso, Missouri. The vibrations traveled from northwest to southeast and continued for several seconds. A second shock at Memphis followed the first after an interval of some 50 seconds. (2, 6, 7, 16)

1881, *October* 7, 10:52 *a.m., Mississippi Valley* (*III-IV*)
A "severe" shock at Memphis, Tennessee. (6, 7)

1882, *July* 20, 4:00 *a.m., Mississippi Valley* (*V*)
A shock lasting about 15 seconds at Cairo, Illinois. Felt also at Collinsville, Illinois, and Charleston, Missouri. (2, 6, 17)

1882, *September* 27, 4:20 *a.m., southern Illinois* (*VI-VII*)
A strong earthquake which affected an area of 40,000 or more square miles in Illinois, Indiana, Kentucky, Missouri, and possibly other states. A subterranean rumbling sound was heard nearly everywhere in the affected area, and in some places more than one shock was reported. At St. Louis, "the shock was first noticed as a rolling even noise, followed by twelve distinct vibrations at intervals of a second. The first vibration was the most violent shock and lasted about fifteen seconds." At many places, chimneys were cracked, small objects overthrown and suspended objects set to swinging. (2, 5, 6, 17; *Knoxville Daily Chronicle, September* 28, 1882)

1882, *October* 14-15, 11:40 *p.m., southern Illinois* (*V*)
Two shocks, one just before midnight on October 14 and the other about 12:30 a.m. on October 15, affected about the same area as the earthquake of September 27, 1882. The affected area is known to have extended from St. Louis and St. Charles, Missouri, to Springfield and Decatur, Illinois, and Indianapolis, Indiana. (2, 5, 6, 17)

1882, *October* 15, 12:30 *p.m., southern Appalachians* (*III-IV*)
A light shock at Murphy, North Carolina. (17)

1883, *January* 8, ___, *Mississippi Valley*
Matthes (1922, page 116) lists "a light shock reported by the Weather Bureau, Memphis." As he does not list the earthquake of January 11, 1883, he is probably in error as to the date.

1883, *January* 11, 1:12 *a.m., Mississippi Valley* (*V*)
A moderately strong earthquake which affected about 80,000 square miles in Tennessee, Missouri, Illinois, Kentucky, Mississippi, and Arkansas. It was felt generally in the Mississippi Valley from Memphis to St. Louis, and as far east in Tennessee as Clarksville and Nashville. There were three shocks at Memphis and four at St. Louis. The vibrations rocked buildings, set

chandeliers to swinging and rang engine bells. (2, 5, 6, 18)

1883, *April* 12, 2:36 *a.m., Mississippi Valley (VIII)*

A strong shock characterized by "short jerky vibrations" felt at Cairo, Illinois. Houses were shaken violently, awakening everyone. The disturbance lasted about 30 seconds. (2, 6, 18)

1883, *June* 11, 12:16 *p.m., Mississippi Valley*

Heck, (1938, page 44) reports this earthquake as follows: "Three shocks at Memphis. Buildings shaken and people rushed out. Third shock heaviest and accompanied by rumbling." Heinrich (1941, page 196) reports that a letter from the Weather Bureau at Memphis states that the Bureau has no record of an earthquake on this date. The date and time are undoubtedly in error, as the brief account given by Heck is applicable to the earthquake of January 11, 1883. (2, 5, 6)

1883, *July* 6, 11:15 *a.m., Mississippi Valley (III)*

A light tremor of short duration at Cairo, Illinois. (6, 18)

1883, *July* 14, 1:30 *a.m., Mississippi Valley (IV-V)*

A shock of 8 seconds duration at Cairo, Illinois, and Wickliffe, Kentucky. Window glass in the courthouse at Wickliffe was reported broken. (2, 6, 18)

1884, *April* 30, 6:46 *a.m., southern Appalachians*

"At 6:46 a.m., at Ogreeta, Cherokee County, North Carolina, a low rumbling sound of earthquake was heard, apparently from the north. No tremor was reported." (19)

1884, *August* 24, 7:45 *p.m., southern Appalachians (IV)*

A light shock at Knoxville, Tennessee, and vicinity. It rattled windows and was attended by a low rumbling noise. (19)

1884, *November* 29, 11:00 *p.m., Mississippi Valley (IV)*

A light shock at Memphis, Covington, and Dyersburg, Tennessee. It lasted several seconds and was attended by a rumbling noise. (6, 7, 19)

1885, *February* 2, 7:10 *a.m., southwestern Virginia (III)*

A very light earthquake at Wytheville, Virginia. A sound like the rumbling of distant thunder seemed to approach from the northwest. (20)

1885, *August* 6, 8:00 *or* 9:00 *a.m., southern Appalachians (IV-V)*

An earthquake centered somewhere in the Blue Ridge in Watauga County, North Carolina. It was felt at Boone and Blowing Rock, 10 miles to the west, and at Beech, Grandfather, and Sugar mountains. The date is given by Heck and Rockwood as August 13, 1885. (5, 20)

1886, *March* 18, ___, *Mississippi Valley (III-IV)*

A heavy shock at Cairo, Illinois. The vibrations are reported to have moved from west to east and to have continued about 15 seconds. (2, 6)

1886, *August* 31, 9:51 *p.m., Charleston, South Carolina*
The destructive Charleston, South Carolina, earthquake was felt throughout Tennessee, its intensity diminishing from about VII in the eastern part of the state to III to IV along the Mississippi River. In urban centers all over the state, people fled from buildings into the streets. At Knoxville, strong shocks were felt at 8:59, 9:03, and 9:09 p.m. The top was thrown from a chimney on Mabry Street "and the family were much frightened by the fall of brick on the house." Damage to plaster was reported from Caryville and Rogersville. (2, 4, 5, 6, 7; *Knoxville Journal*, September 1 and September 2, 1886)

1887, *February* 6, 4:15 *p.m., southern Indiana (V)*
A strong earthquake felt over at least 75,000 square miles in southern Indiana, Illinois, Missouri and Kentucky. The southern extent of the affected area has not been determined. (2, 5, 6)

1887, *August* 2, 12:36 *p.m., Mississippi Valley (V)*
A "severe" shock centered somewhere near Cairo, Illinois, and felt over a wide area in Tennessee, Missouri, Kentucky and Illinois. It was strongly felt at Nashville, Gallatin, Clarksville, Chattanooga, Tullahoma, McMinnville, Columbia, Jackson, and Union City, Tennessee, and at St. Louis, Missouri. (6)

1886, *March* 17, ___, *eastern Tennessee*
A slight shock at Jonesboro reported by the *Tennessee Board of Health* (Bulletin 3, No. 9, April 1888, p. 110).

1888, *November* 3, ___, *Mississippi Valley (IV)*
A shock at Memphis, Tennessee. The vibrations moved north-northwest to south-southeast. Windows rattled. (6, 7)

1889, *January* 5, ___, *Mississippi Valley (III)*
A light shock at Memphis. (7)

1889, *June* 5, 10:28 *p.m., Mississippi Valley (III)*
A light shock at Memphis, Tennessee. (6)

1889, *June* 6, 8:25 *p.m., Mississippi Valley (III-IV)*
Earthquake shocks were felt at Nunnelly and Milan. The shocks were quite noticeable in the upper storeys of buildings. *Tennessee State Board of Health Bulletin* 3, No 12, July 1889, p. 222.

1889, *July* 19, 7:32 *p.m., Mississippi Valley (V-VII)*
A "severe" shock at Memphis, Tennessee. Walls and chimneys were cracked and suspended objects set to swinging. People were in panic. The vibrations moved from north-northeast to south-southwest. (2, 5, 6, 7)

1889, *September* 28, *night, southern Appalachians (III-IV)*
A light shock at Parksville (Polk County) reported by a

weather observer. *Tennessee State Board of Health Bulletin* 4, No. 3, October 20, 1889, p. 46.

1891, *January* 14, ---, *Mississippi Valley* (*III-IV*)
A light shock at Memphis. U. S. Coast and Geodetic Survey card file.

1891, *September* 26, 10:55 *p.m., Mississippi Valley* (*V*)
A strong earthquake felt in the Mississippi Valley near Cairo, Illinois. Described as beginning slowly and gaining strength in a few seconds. Movable objects 'jigged" and trees swayed as if blown by the wind. (6)

1892, *January* 14, 3:05 *a.m., Mississippi Valley* (*III*)
Two light shocks shook buildings at Memphis, Tennessee. (6, 7)

1894, *July* 18, ---, *Mississippi Valley* (*III*)
A light shock at Memphis, Tennessee. "Wave south to north; no damage." (7)

1895, *July* 27, ---, *west Tennessee* (*III-IV*)
An earthquake at Savannah. *Tennessee State Board of Health Bulletin*, Vol. 11, No. 1, August 20, 1895.

1895, *October* 3, ---, *Mississippi Valley* (*III*)
A light shock at Memphis, Tennessee. (7)

1895, *October* 18, 12:10 *a.m.*, 3:00 *a.m., Mississippi Valley* (*III*)
Two light shocks at New Madrid, Missouri. (6)

1895, *October* 30, 8:30 *a.m.;* 2:00 *p.m.;* 4:30 *p.m., Mississippi Valley* (*III*)
Three light shocks at Corning, Arkansas. (6)

1895, *October* 31, 5:00 *a.m., Mississippi Valley* (*IX*)
One of the two really great earthquakes in the Mississippi Valley since the New Madrid earthquake of 1811-1812. It attained destructive intensities at several places. At Charleston, Missouri, near the epicenter, the damage to structures was heavy. At Cairo, Illinois, and Memphis, Tennessee, several chimneys were thrown down. Near Bertrand, Missouri, hundreds of mounds of white sand were thrown up. It was felt at Knoxville, where the intensity was probably about IV.

This earthquake was felt over an area of about 1,000,000 square miles in about 23 states, including the entire state of Tennessee. (2, 5, 6, 7; *Knoxville Journal*, November 1, 1895)

1895, *November* 1, 8:16 *p.m., Mississippi Valley* (*IV*)
Aftershock of the Charleston, Missouri, earthquake felt at Memphis, Tennessee. (2, 6, 7)

1895, *November* 2, 2:00 *a.m. and* 11:00 *a.m., Mississippi Valley* (*III-IV*)

Two aftershocks of the Charleston, Missouri, earthquake (2, 6, 7)

1895, *November* 17, ---, *Mississippi Valley (III-IV)*
Aftershock of the Charleston, Missouri, earthquake. (2, 6)

1897, *April* 25, 10:00 *p.m., Mississippi Valley (III)*
A shock felt strongly at Osceola, Arkansas, and Cairo, Illinois. Large buildings swayed. People were frightened. (2, 6)

1897, *April* 30, 10:00 *p.m., Mississippi Valley (IV-V)*
A strong shock, lasting about 20 seconds, felt in western Tennessee, western Kentucky, southern Illinois and southern Indiana. (2, 5, 6)

1897, *May* 3, 12:18 *p. m., southwestern Virginia (VII)*
A strong earthquake centered in Giles County, Virginia, and felt over nearly all of Virginia and parts of West Virginia and North Carolina. It attained destructive intensities in Giles County and in Pulaski County, where bricks were loosened from chimneys. The shock was accompanied by a thunderous rumbling noise. From May 3 to May 31, no shocks were felt but a rumbling noise similar to that which accompanied the initial shock continued. On May 31, a very strong shock occurred. (3, 5, 21)

1897, *May* 31, 1:58 *p.m., southwest Virginia (VIII)*
A strong earthquake felt over an area of about 280,000 square miles in several states. In the epicentral area in Giles County, Virginia, the ground surface rolled like a ground swell on the ocean, the ground was fissured, springs ceased to flow for a while, landslides occurred and large pieces of rock rolled off of Wolf Creek Mountain. At Narrows and Pearisburg, old brick houses were badly shaken, chimneys were cracked, and the topmost bricks were hurled to the ground. Much noise accompanied the shock and people were terror-stricken. Tremors and loud explosive noises continued through the night. Five or ten shocks per day occurred and it is estimated that 250 distinct shocks followed the heavy shock of May 31.

The strong shock of May 31 was felt throughout eastern Tennessee and as far west as Tullahoma. In western North Carolina it was felt generally. At such distant points as Savannah and Atlanta, Georgia; Baltimore, Maryland; Pittsburgh, Pennsylvania; and Indianapolis, Indiana, the shock was distinctly felt. (3, 5, 21)

1897, *October* 21, 10:20 *p.m., southwest Virginia (V)*
A strong shock was felt at Salem and Wytheville, Virginia, and at Winston-Salem, North Carolina. (5, 21)

1898, *January* 26, 9:35 *p.m., Mississippi Valley (III)*
A light shock at Helena, Arkansas. (21)

1898, *March* 29, 7:30 *p.m., southern Kentucky (III)*

A light shock at Mt. Hermon, Monroe County, Kentucky. (21)

1898, *June* 14, 9:20 *a.m., Mississippi Valley (III-IV)*

A light shock felt throughout the New Madrid area in the Mississippi Valley. The affected area extended over parts of several states, including Missouri, Tennessee, Kentucky, Arkansas and Alabama. In Tennessee, it was reported felt at Memphis, Bolivar and Wilderville. (2, 6, 21)

1898, *November* 25, 3:05 *p.m., southwestern Virginia (V)*

An earthquake, apparently centered near Wytheville, felt over much of Virginia. Localities within the affected area include Bedford City, Bonair, Buckingham, Colman's Fall, Radford, Roanoke, Pulaski, Wytheville, Blacksburg, Burkes Garden, Fredericksburg, Lexington and Lynchburg. The shock was felt also at Washington, D. C. (21)

1899, *February* 13, 4:30 *a.m., Virginia (V-VI)*

Four shocks felt over an extensive area in Virginia, Tennessee, and North Carolina. The disturbance was strongly felt in eastern Tennessee. (5, 21)

1899, *April* 29, 8:05 *p.m., southern Indiana (VI)*

A strong shock felt over an area of 40,000 square miles in southern Indiana, southern Illinois, and western Kentucky. The southern limit of the affected area is not known. (2, 5, 6, 21)

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