THE WESTON METEORITE (1807) – IMPACT SITES IN FAIRFIELD COUNTY, CONNECTICUT. D. T. King, Jr.[1] and L. W. Petruny[2], [1]Geology Office, Auburn University, Auburn, AL 36849 [kingdat@auburn.edu], [2]Astra-Terra Research, Auburn, AL 36831-3323 [lpetruny@att.net].

Introduction: Ernst Chladni's 1794 book laying out the arguments that meteorites came from outer space, not volcanoes or storm clouds, marks the theoretical origin of the modern science of meteoritics. Criticisms of Chladni's assertions began to fall away after the witnessed and well-documented meteoritic falls at Wold Cottage, Yorkshire, England (1795), and l'Aigle, Normandy, France (1803). On December 14, 1807, a widely witnessed meteorite fall over Weston, Fairfield County, Connecticut, brought the new science of meteoritics to the United States. Recovered, documented, and chemically analyzed by Yale University professors Benjamin Silliman and James Kingsley, the Weston meteorite became the first such scientifically verified meteorite fall in the New World. Fragments collected by Silliman and Kingsley were the first catalogued objects in the Yale meteorite collection, the oldest such collection in the United States. News reports of the day and subsequent inventories suggest that there were several dozen fragments, which have a combined mass of ~ 150 kg. The Weston meteorite is an H4 ordinary chondrite [1]

Fire-ball flight line: Newspaper accounts of the event mention that witnesses saw the early morning's 30-second, red fire ball, which was said to be one-helf to two-thirds the size of the full moon, moving along a approximate north-to-south path from southern Vermont, across Massachusetts, and over western Connecticut [2] (Figure 1). Meteoritic debris impacted at the terminus in Fairfield County, Connecticut.

Along the flight line, three sonic booms were heard as far away as 65 km. In some places, the booms were followed by a rumbling sound said to be like a cannon ball rolling along a wooden floor. In the vicinity of sites where fragments fell, whizzing sounds were heard as well.

The flight-line orientation, physical effects, and eye-witness accouts of this event are remarkably similar to a bolide event in the southeastern U.S. on December 6, 1999, which we have reported on previously [2]. However, in that instance, the meteoritic debris was not recovered.

Impact sites: News reports of the Weston meteorite event mention a total of six impact sites. These include what we call here Sites 1 through 3 (Figure 2). Site 4 (Figure 4) is speculative. We report here on another site (Site 5), which may be pertinent.

Site 1. The majority of fragments fell at the primary site in the present town of Easton (but the site was within the town of Weston as constituted in 1807, hence the name). This primary site is located about 500 m north of a road intersection at the historic 1715 Burton House. The largest fragment (~ 16 kg) was excavated from a shallow (~ 60 cm) pit at this site. At that time, the property owner was William Prince [3]. This area is today in a heavily wooded, upscale housing subdivision with a vigilant neighborhood watch.

Figure 1. Flight line based on witness reports.

Site 2. Another possible impact site is located a few tens of meters west of Sturbridge Lane within the present town of Trumbull [1]. This area is behind several home tracts, where a small stream flows through a heavily forested area. The soil there is laden with glacial boulders and there are small bedrock outcrops in this area. This site is listed in the Meteorticial Bulletin Database [5], however doubt has been cast on the veracity of these coordinates [6]. This is not the same site as the apparently erroneous coordinates given in the on-line *Catalogue of Meteorites* [7], which are 12.8 km away in another town.

Site 3. A single large fragment (~ 16 kg) was found at "the foot of Tashua Hill" in the present town of Trumbull [4]. Unfortunately, the exact location of this

part of the fall is not clear. Today, the high ground at this site is known as Tashua Knolls. Tashua Knolls is today a town recreation area, which is surrounded by woods, homes, and shopping areas.

Site 4. According to news accounts of the fall, a small crater formed from impact of a large fragment on the farm of Elijah Seeley, who lived at Hoyden Hill [4]. The crater was ~ 1.5 m wide and ~ 1 m deep and there was soil and bedrock ejecta up to ~ 50 m away. The location of this site has been lost, but Hoyden Hills is a topographic feature within the present town of Fairfield. We assume that this is the same area as the former Seeley farm. However, we could not confirm this location.

Site 5. An Easton resident told us of an alledged small crater formed by an historic meteoritic fall, which is now located on the property of a local Tree Farm. There are several tree farms in the vicinity of Easton. Unfortunately, we could not confirm this anecdote about the Weston meteorite.

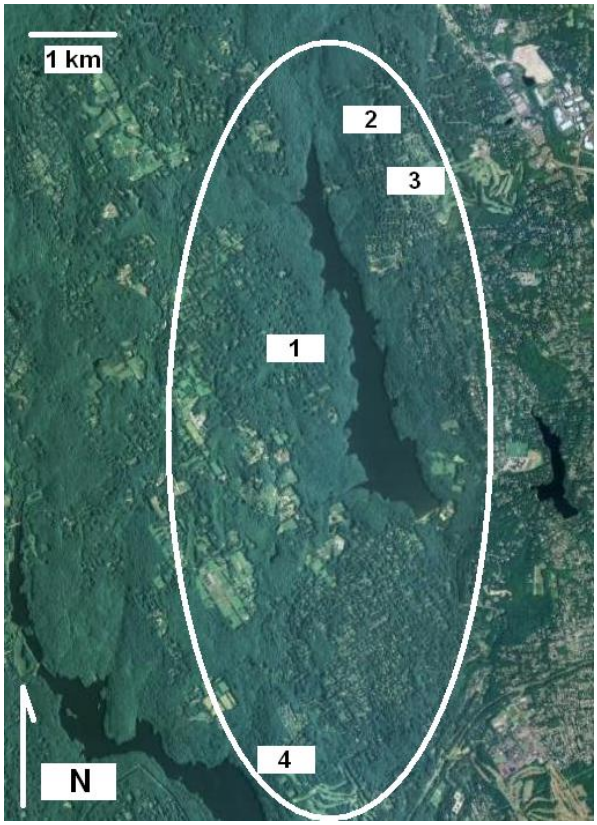

Figure 2. Inferred ellipse of the Weston meteoritic strewnfield based on four sites mentioned above. Plotted on Google Earth satellite base image. Sites 1 through 4 correspond to the text. Scale indicated on figure. The large water body within the ellipse is Easton Reservior.

References: [1] Grady M.M. (2000) *Catalogue of Meteorites*, 5th ed. Cambridge Univ. Press. [2] Dritschilo G. (2007) The night the sky exploded. *Rutland (Vermont) Herald.* [3] Banks E.V.H. (1960) *This is Fairfield, 1639-1940*. Walker-Rackcliff Co. [4] Seeley D.M. (1984) *Tales of Trumbull's past*. Bader Printing Co. [5] Meteoritical Society (2007) *Meteoritical Bulletin Database*. http://tin.er.usgs.gov/meteor/metbull.php?code=24249. [6] Robson M.C. (2007) Weston. *Meteoritics & Planetary Sci., 42*, abst. 5318. [7] Natural History Museum (2007) *Catalogue of Meteorites.* http://internt.nmh.ac.uk/jdsml/researchcuration/projects/metcat/detail.dsml?Key=W760.