What Really Caused the Chicago Fire?

AUTHOR HAS EXPLANATION FOR STRANGE SERIES OF FIRES THAT DEVASTATED LAKE MICHIGAN REGION, OCT. 8, 1871

By Marc Roland

When I was a boy in the 1950s, my great-grandmother told me how she survived American history's epic conflagration: the Great Chicago Fire. Despite Frances's 90-plus years, she was still physically and mentally vigorous, with a photographic memory going back to her Civil War-era upbringing.

The old lady lucidly recalled that fateful Sunday night of Oct. 8, 1871, when, as a 20-year-old woman living at home with her parents on the Windy City's south side, she was getting ready for bed sometime before 10 p.m. Just then, an indefinable yet ominous commotion began outside on the thoroughfare below. She threw open her second-story window to see a vast throng of hysterical people fleeing down 12th Street. Some carried bundles or screaming infants in their arms, or dragged haphazardly piled handcarts, but most ran screaming and shouting with nothing more than the clothes on their backs. Looming up behind them was a rapidly advancing curtain of fire as wide as the horizon and hundreds of feet high, topped by mountainous billows of smoke garishly illuminated by the flames.

Frances alerted her parents, and minutes later the little family was swept along with a fast-moving torrent of

Above and the facing page: Much of Chicago looked like the site of an atom bomb blast after the great fire raged for three days, Oct. 8-10, 1871. But we cannot place the blame on Mrs. O'Leary's cow and lantern, because at the same time giant fires also roared clear across the lower peninsula of Michigan and in several other areas in the Midwest. Ironically the O'Leary house, on DeKoven Street, was left standing. Author Marc Roland's theory is that the fragments of Comet Biela may have caused a meteor shower, setting off the fires. It was a hot, dry and windy autumn day, which also contributed to the disaster. The Chicago Fire Department had only 17 horse-drawn steam engines and 185 firefighters to handle the entire city. Thousands of people lost their lives in the combined conflagrations.

panic-stricken humanity moving desperately toward the imagined refuge of Lake Michigan, two-and-a-half miles away to the east. Their constant cries of distress were occasionally drowned out by the thunder of exploding gas mains and the collapse of stone masonry. Strong winds gusting from the southwest empowered the firestorm, which steadily gained on the fleeing multitudes, as though hungry to devour them. When the cataclysm surged forward, people threw off their precious burdens to run free from all material attachment. Some fell and were instantly, heedlessly trampled to death.

Rising higher into cooler temperatures, overheated air began to spin faster and faster, growing bigger and denser the higher it rose above the ground to hurl clouds of incendiary debris over a wider range. Burning lumberyards, warehouses and coal storage depots stoked this fiery typhoon, which jumped the Chicago River, where a railroad car carrying kerosene exploded with enough force to engulf the heart of the city. The courthouse imploded, its cupola containing a great, brass bell falling to the street below in a resounding crash heard a mile away. Then the waterworks building exploded, and all mains went suddenly dry, totally disarming firefighters, and allowed the fire to run unchecked from building to building, block by block. The rampant blaze pressed on, puffing itself up into yet more monstrous propor-

tions, its hot breath roaring at the south side fugitives running for their lives down 12th Street.

But the momentum of the ravenous cataclysm did not halt at Lake Michigan, where gargantuan tongues of flame licked the beaches, forcing everyone to wade far out into the water. Knee-deep amid the waves, with glowing faces reflecting the angry apocalypse, they watched their city burn through the long night, bright enough by which to read the fine print of a newspaper. Schooners and freighters came to their aid, but as women, children, elderly and injured persons were helped into lifeboats, a luminous barrage of orange-red embers arose out of the west, arching high overhead through the night sky to catch among the rigging. Sails burst into flames, burning masts, like match-sticks, down to decks. When several vessels had to be abandoned, so were further relief efforts, and the ships stood off at a safer distance, out in the lake. By dawn, the fire had died out, but the sands were very hot, so people had to endure most of the morning in the cold water, numerous hypothermia victims falling and drowning where they stood. Shortly before noon, exhausted survivors waded back to the still-warm beach, where they wearily camped out, recovering their strength.

Sunrise the next day revealed a landscape of unrecognizable devastation. Former neighborhoods were smoldering panoramas of ash and pulverized ruin. Three-and-a-third square miles of the metropolitan area—encompassing more than 2,000 acres in an area about four miles long, averaging nearly a mile across—had been entirely gutted. Over 17,5000 buildings were destroyed, leaving 125,000 residents homeless, more than a third of Chicago's total population. They suffered some 2,600 injured, but the actual number of dead included nameless city visitors and itinerant laborers. The county coroner confessed that an accurate body count was impossible, because additional, unknown victims had either drowned or been reduced to ashes. Conceivably, upwards of a thousand persons perished. Doubtless, total fatalities far exceeded official estimates of about 300 persons.

No less uncertain was the cause of the fire itself. Catherine O'Leary was accused of drunken negligence that sparked the disaster, when her unattended cow allegedly kicked over a lantern in the Irish Catholic immigrant's barn on DeKoven Street, a few blocks north of my great-grandmother's home. Although *Chicago Republican* reporter Michael Ahern admitted 22 years later that he had invented the story on behalf of establishment politicians wary of growing Irish influence at city hall, his fabrication is still generally taken for granted by a public that has since been sold many more newsmedia lies.

Meteorologists pointed out that Chicago had only received an inch of rain in the three months leading up to the fire, resulting in severe drought conditions that inevitably culminated in catastrophe. But their explanation did not sit well with a former Minnesota lieutenant governor, U.S. Congressman and populist leader, better remembered today as the founder of Atlantology, the serious study of the lost civilization of Atlantis. Regarded then and now by admirers and detractors as either a visionary polymath or pseudo-scientific crank, Ignatius Donnelly (1831-1901) made the astounding claim 12 years after the Great Chicago Fire that it had been caused by a comet. Although dismissed without comment by most mainstream scientists ever since he published his unconventional hypothesis, Donnelly's arguments have gained special credence in recent years with advances in celestial mechanics. They show that a comet known as Biela underwent a rarely observed transfiguration that coincided with events on the ground during the late 19th century.

First recorded in 1772, it was named 56 years after Wilhelm von Biela, an Austrian army officer, who calculated its orbit, determined its periodicity, and found it was the only comet known to intersect Earth's orbit. The important French astronomer, Marie-Charles Damoiseau (1768 -1846), "calculated its path, and announced that on its next return the comet would cross the orbit of the Earth within 20,000 miles of its track, but about one month before the Earth would have arrived at the same spot," close enough for our planet's gravitational field to exert its tidal influence.[1] Although, as Biela predicted, his comet reappeared in 1845, no one could have foreseen its altered appearance: The nucleus had split in two; a smaller fragment was pulling away from the larger. Donnelly wrote how "each half had a head and tail of its own, and they were whirling through space, side by side, like a couple of race-horses, about 16,000 miles apart, or about twice as wide apart as the diameter of the Earth."[2]

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After another seven years, the larger "Biela Major" was followed 40 days later by "Biela Minor," indicating they were drifting further apart. Neither was ever seen again. In their place, on the night of Nov. 27 1872, a brilliant meteor shower of about 3,000 shooting stars per hour radiated from the same part of the sky where Biela Major and Minor had been predicted to cross the previous autumn, when Earth intersected their trajectory. "There were 80 of the meteors that furnished a good position for the radiant point of the discharge," Donnelly wrote, "and that position, strange to say, was very much the same as the position in space that Biela's comet should have occupied just about that time on its fourth return toward perihelion" (a point in the comet's orbit at which it was closest to the Sun).[3]

Referred to as the Andromedids for their appearance near the Constellation Andromeda, they progressively diminished throughout subsequent decades, finally fading away just before the 20th century. Astronomers at the time assumed these attenuating meteor showers were the fragmentary remnants of the disintegrated comet. But the Andromedids were clouds of tiny debris from separation of the comet's nucleus. The two unequal parts had so far parted company back in 1857, when both were observed, that the larger portion was by then careening into outer space, toward the furthermost point of its ellipse, and into the fatal embrace of planet Jupiter's gravitational pull. Meanwhile, Biela Minor was falling back toward our Sun, and invisible to anyone on Earth, because its smaller size did not contain enough gases that, when ionized by the solar wind, would give it a visible tail. Little Biela would, however, still possess enough of those gases to offer an explosive threat if ever they were brought into Earth's atmosphere. Inert in the cold, airless vacuum of frigid space, they would ignite in the presence of oxygen to temperatures in excess of 6,000 degrees Fahrenheit.

It was this extraterrestrial intruder, Donnelly believed, that sparked the Great Chicago Fire, which combusted concurrently at scattered locations just after Biela Minor crossed Earth's orbit. As eyewitness testimony, he cited a writer for New York's *Evening Post*, then on assignment in the city, when the reporter saw "buildings far beyond the line of fire, and in no contact with it, burst into flames from the interior."[4] Nearly a mile away from the fire, the huge Montgomery Wards building inexplicably caught fire by itself, the only structure in its immediate vicinity to do so.[5] Other observers, including the city's fire chief, told of several flash points that erupted simultaneously at widely separated places across the south side. He recalled that his men were subduing the DeKoven Street blaze when they were informed that at least two other, serious fires were active far beyond any wind-driven embers.[6]

"Strange, fantastic fires of blue, red, and green," according to the *Evening Post* reporter, "played along the cornices of buildings."[7] Many fires were observed starting in the basements of buildings distantly removed from the conflagration. Some component gases of a comet are heavier than air, so they would have settled in these lower areas. Firefighters were perplexed by the numerous blue flames that lit the city, "as though alcohol were burning," writes Mel Waskins, whose 1985 analysis of the Great Chicago Fire supported Donnelly's theory with modern astronomy. "The chemical components of methane and acetylene, the cometary gases," Waskins wrote, "are similar to the chemicals that form the basis of alcohol."[8]

These accounts suggest that the fires were caused by methane commonly found in comets, stated retired McDonnell-Douglas physicist Robert Wood at a 2004 conference of the Aerospace Corporation and the American

Ignatius Donnelly

At half past nine in the evening, fires broke out in Wisconsin, Illinois and Michigan—seemingly by "spontaneous combustion." Ignatius L. Donnelly, shown here, warned that a comet was capable of causing "a rain of fire and gravel." Donnelly, an author and political reformer, has been called a crank by some, but he may have been on to something. Clearly he was brilliant and an original thinker. A tireless, fighting politician, Donnelly was elected lieutenant governor of Minnesota in 1859. His first book, *Atlantis: The Antediluvian World* (1882), sought to demonstrate the real existence of Plato's sunken civilization. Next, in 1883, came his book about disastrous comets*: Ragnarok: The Age of Fire and Gravel.* Then in 1888 followed *The Great Cryptogram*, in which he tried to prove the likely theory that Francis Bacon was the author of the plays generally attributed to "Shakespeare." A Populist, he joined the Grangers and Greenbackers and published a weekly newspaper, *The Anti-Monopolist.* He crusaded for reforms to help the middle and working classes. In 1890 he wrote *Caesar's Column: A Story of the Twentieth Century,* graphically foreseeing the horrors of dictatorship in the U.S.A. A true rebel, Donnelly was a hero of populists and very early Revisionists.

Institute of Aeronautics and Astronautics, in Pasadena, California.[9] He was seconded by Irving F. Miller, professor of chemical engineering at the University of Illinois (Chicago), who concluded, "it seems more fitting to attribute it [the Chicago Fire] to a celestial accident, than to a poor, uncomprehending bovine." [10]

OTHER CITIES SET ABLAZE

If the coincidence of that catastrophe with Biela Minor's intersection of Earth's orbit was, as Dr. Miller remarked, an "accident," their connection was all the more remarkable in light of the numerous, other conflagrations that ravaged Wisconsin and Michigan at the same time; quite literally, the same hour. Today virtually forgotten, they far excelled the Chicago Fire in their extent and loss of life, comprising the highest number of human casualties from a natural disaster in U.S. history. One hundred miles directly across Lake Michigan from Chicago, another urban center was obliterated with astonishingly unbelievable rapidity.

"It can be said that our beloved city of Holland [Michigan] no longer exists," lamented resident Gerrit Van Schelven. "No one, unless he has been an eyewitness of such a scene, can conceive its terror or its awfulness. We shall not attempt to describe it. The entire territory covered by the fire was mowed as clean as with a reaper; there was not a fencepost or a sidewalk plank and hardly the stump of a shade tree left to designate the old lines.

"When first light shone on the devastation, people could not believe what they saw: The break of day on that Monday morning presented a scene, the memory of which will outlive all other recollections in the minds of its victims. The entire business district lies in ruins. Entire streets have disappeared; every businessman has lost everything, and between 200 and 300 houses have been destroyed by fire. The most beautiful part of our city has become an unsightly level plain of smoking and smoldering ruins." [11]

Another 100 miles north, the coastal town of Manistee was burning. "About 9:30 p.m., just as people were returning from evening services," survivor B. M. Cutcheon wrote, "a red, angry glare lighted up the western sky near the mouth of the river. The fire department rushed to the rescue. Three-fourths of a mile was one, surging sea of fire. The steam fire engine burned in the street where it stood, the men and horses barely escaping with their lives. About three o'clock, the wind abated, but the work of ruin was complete. When Monday morning's sun glared red and lurid through the heavy masses of smoke, where had stood Manistee, it beheld a scene of desolation scarcely to be described. Buildings, foundations, fences, sidewalks, trees, shrubbery—everything—were mowed close to the surface of the earth, and grass burned out by the roots."[12]

The total loss of property at Manistee was about $1 million in 1871 currency.

The same, horrific scenes were playing out simultaneously 325 miles eastward across the state at Port Huron, where at least 50 persons died and hundreds were injured, many severely. But the total number of deaths across Michigan—officially estimated between 500 and 1,000, largely based on families' reporting their members missing—was impossible to determine, because uncounted thousands of lumberjacks and salesmen had spread out across the state, along with settlers and tribal Indians in remote areas effected by the fires. So too, the exact extent of property loss, animal deaths, and forest devastation cannot be determined. What is known is that almost 4,000 square miles—some two and a half million acres—were burned in Michigan during the same night.[13]

Terrible as conditions were in that state, they comprised a fraction of the cataclysm suffered by the people of Wisconsin. Directly across Lake Michigan, 75 miles west from the catastrophe under way at Manistee, 1.2 million to 1.5 million acres—1,875 to 2,000 square miles—were in flames, consuming forestlands twice the size of Rhode Island.[14] Lost were 13 villages and towns, together with dozens of farms and settlements, in which 1,200 to 2,500 people perished.

> "The horrific scenes were playing out simultaneously on the other side of the state at Port Huron.

As Belgian immigrants fled Williamsonville, "60 persons sought refuge in an open field surrounding this spot," reads a commemorative plaque, "and were burned to death."[15]

Of Peshtigo's 1,749 residents, about three-quarters of them were killed. More than 350 of their bodies had to be buried in a mass grave, because too few townsfolk remained alive to identify the dead, most of whom were charred beyond recognition. Over time, many survivors succumbed to the effects of smoke inhalation, injuries, trauma and despair. But personal testimonies of their ordeal described the Peshtigo Fire as not only the deadliest of its kind in American history, but the strangest.

Immediately after the event, James W. Sheahan and George P. Upton interviewed every eyewitness willing to talk about it, while its horrible details were still fresh in their minds. The veteran Chicago newspaper reporters found that the stories they collected were consistent in their recollection of "balls of fire" falling from the sky:

> At a few minutes after nine o'clock, the people of the village heard a terrible roar. Instantly the heavens were illuminated with a terrible glare. The sky, which had been so dark a moment before, burst into clouds of

The "Forgotten Fire"—A terrible "fire tornado" swept through a forested part of Wisconsin on Oct. 8-9, 1871, after months of drought, obliterating the towns of Peshtigo and Brussels, and 10 other towns, and killing 1,200-2,400 people. More than a thousand in Peshtigo alone—three-quarters the population—perished. Three hundred fifty victims who could not be identified are commemorated at the mass grave whose marker is shown below. The burned area was 10 by 40 miles. It was the deadliest, forest fire in North American history. For whatever reason, the Peshtigo disaster has been forgotten, while the simultaneous Chicago fire has become legendary—but only killed some 300 persons, officially.

flame. A spectator of the terrible scene says the fire did not come upon them gradually from burning trees and other objects to the windward, but the first notice they had of it was a whirlwind of flame in great clouds from above the tops of the trees, which fell upon and entirely enveloped everything. They could give no other interpretation to this ominous roar, this bursting of the sky with flame, and this dropping down of fire out of the very heavens, consuming instantly everything it touched. "It came in great, sheeted flames from heaven," says another. "The atmosphere was all afire." The fire leaped over roofs and trees, and ignited whole streets at once. Some speak of "great balls of fire unrolling and shooting forth, in streams." The whole sky was filled with them; round smoky masses about the size of a large balloon, traveling at unbelievable speed. They fell to the ground and burst.[16]

Reverend Peter Perrin, a Catholic priest who lived through the Peshtigo calamity, remembered how he saw:

> [O]n casting my eye upwards, a sea of flame, as it were, the immense waves of which were in a state of violent commotion, rolling tumultuously one over the other, and all at a prodigious height in the sky, and consequently, far from any combustible material. How can this phenomenon be explained without admitting the supposition that immense quantities of gas were accumulated in the air? The air itself was on fire. Above my head, as far as the eye could reach into space, alas! too brilliantly lighted, I saw nothing but immense volumes of flames covering the firmament, rolling one over the other with stormy violence, as we see masses of clouds driven wildly hither and thither by the fierce power of the tempest.[17]

Sheahan and Upton described the bizarre fate of a mother, father and their children:

> The onslaught was so sudden that the family could only run to the center of an immense clearing on their farm where nothing combustible stood. They hoped to be safe, several hundreds yards from structures or

trees. When the fire came, rushing on all sides of them, it did not in fact touch them. But eyewitnesses saw them die. A great balloon of fire dropped on them—father, mother and four children. They were incinerated in an instant. Almost nothing was left of them.[18]

There were other anomalies: "Accompanying the firestorm and the wind," Donnelly pointed out, "was a rain of red-hot sand. It was not clear to those eyewitnesses who survived their ordeal where this sand came from. It must have been raised from the Earth by the incredible winds, but from where? There was sand on the beaches, but the beaches lay to the east, and the wind was blowing from the west and the south. There was no sand on the floor of the forest nor on the farmlands of Wisconsin." [19]

"The air was no longer fit to breathe," recalled Rev. Pernin, "full as it was of sand." [20] Sheahan and Upton reported incredulously that the victims were pelted by "a pitiless rain of fire and *sand*."[21] The coma, or "heads" of comets are commonly bonded with granulated silicates, a kind of gravel or sand. Its presence in abundance during the cataclysm combines with "balloons of flame" descending from the sky to show that the October 1871 event was not a familiar prairie blaze or forest fire.

The distinct nature of these events was emphasized by the fires' unprecedented high temperatures and cyclonic winds. Historians David Gesso and William Lutz describe "superheated flames of at least 2,000 degrees Fahrenheit," and "winds of 110 miles per hour or stronger" that "threw rail cars and houses into the air."[22]

"All the fires over a three-state area started around 9:30 p.m., making it impossible for one to have caught fire from another.

While these atypical effects required extraordinary origins, conventional scholars offer that they were simply the anticipated result of drought conditions:

> A common cause for the fires in the Midwest can be found in the fact that the area had suffered through a tinder-dry summer, so that winds from the front that moved in that evening were capable of generating rapidly expanding blazes from available ignition sources, which were plentiful in the region.[23]

This supposition ignores the unexplainable fact that all the conflagrations over a three-state area started around 9:30 p.m., making it impossible for one to have caught fire from another. Assuming that fires ignited in locations hundreds of miles apart at the same moment is not an acceptable hypothesis.

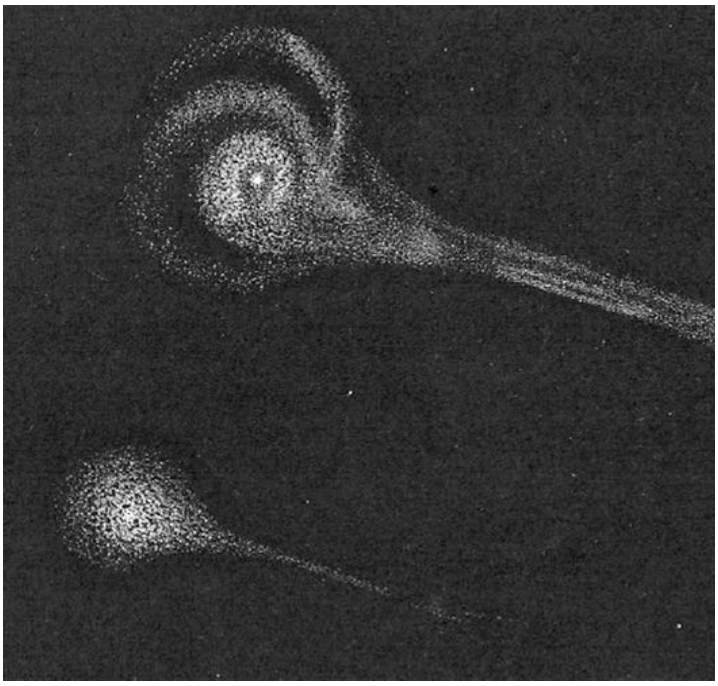
Munising, Michigan's Kenneth Riell, who has researched the Upper Midwestern fires since the 1990s, points out that dry summers and strong winds never produced a similar result, before or since—or anywhere else. He was first intrigued by possibilities for a celestial cause when a relative and his fellow workers boring holes for a Detroit water pipeline discovered a horde of meteorite fragments. "They were bringing it out and piling it up," he said.[24] In conjunction with these finds, Riell notes that Canadian geologists during the early 1990s identified a huge impact crater 200 feet below the surface of Lake Huron in the Port Huron area. More recently, a 59-pound carbonaceous chondrite meteorite was discovered on the southwestern shores of Lake Huron. While neither of these finds have so far been positively identified with the fires of 1871, they may explain a line in Rev. Pernin's account: "[M]any felt a shock of earthquake at the moment that everything on the surface of the Earth was trembling before the violence of the hurricane."[25] Perhaps they experienced the tremor of a nearby meteorite impact.

But according to Michigan State University's David Batch, director of the Abram Planetarium, "there's no known evidence of a comet or a meteorite causing a fire in history."[26] It would appear he is unaware of the Tunguska Event, which occurred just 37 years after the Chicago Fire, when a meteor or comet fragment exploded over Siberia. "The temperature at the center of the fireball was estimated by one source to be up to 30 million degrees Fahrenheit," writes Mark Brazo and Steven Austin for California's Geoscience Research Institute. "After the impact, forest fires broke out and ravaged an area of [6.2 to 9.3 miles] in radius." [27]

While no one was killed by the Siberian blast, as many as 4,000 or more people may have died in the fires that flared up in Chicago, Michigan and Wisconsin on the exact same evening. Survivors from each one stated that the conflagrations did not begin gradually, gave no forewarning, and exploded full-blown on the scene. The geographical relationship between these widely separate fires suggests that Biela Minor approached Port Huron in a low trajectory from the northeast at between 25,000 and 160,000 mph (the speed parameters of meteors entering Earth's atmosphere), when the super-heated comet fragment exploded around 9:30 on the night of Oct. 8, 1871, showering incandescent material across Michigan into Wisconsin and Illinois in a V-shaped pattern indistinguishable from a shotgun blast

Twenty-eight years before, an obscure poet, M. Lattey, published a prescient poem in *The Illustrated London News* about the same comet, which had then recently split in half:

> Lone wanderer of the tractless sky,
> Companionless, say, dost thou fly
> Along thy solitary path,
> A flaming messenger of wrath? ✦



Comet Biela was discovered in 1772 and identified as periodic in1826 by Wilhelm von Biela—hence the name. It was just the third comet in history to have its periodic orbit definitely calculated, with a period of 6.6 years. Its nucleus was observed in 1852 to have split in two, called A and B (see illustration). But after 1852 it was never seen again, and it may have evolved into a meteor shower. In the form of a cluster of meteors, the disintegrated comet may have circled the Sun again in 1871, theoretically causing horrific firestorms. These may not have been normal fires. For example, in one reported case, a coin was found half melted in the pocket of a victim while his clothing was unsinged. The theory was proposed by Ignatius Donnelly in 1883 and revived in a 1985 book. It was further explored in an unpublished 2004 scientific paper.

ENDNOTES:

1 Donnelly, Ignatius. *Ragnarok, or the Age of Fire and Gravel*. NY: Dover Books, 2004.

2 *Ibid.*

3 *Ibid.*

4 *Ibid.*

5 Stone, Melville E. *Chicago Before the Fire, After the Fire and Today*. NY: Scribners Magazine, Vol. XVII, No. 6, June 1895.

6 *Ibid.*

7 Donnelly, *op. cit.*

8 Waskin, Mel. *Mrs. O'Leary's Comet*. Academy Chicago Publishers, 1985.

9 Wood, Robert. "Did Biela's Comet Cause the Chicago and Midwest Fires?" CA.: Planetary Defense Conference: Protecting Earth from Asteroids. Feb. 23–26, 2004.

10 Waskin, op. cit.

11 "Holland Burns" https://www.awesomestories.com.

12 Cutcheon, B. M. *The Great Fire of Manistee County, Michigan*. Chicago: H.R. Page & Co., 1882.

13 Sodders, Betty. Michigan on Fire. MI: Thunder Bay Press, 1997.

14 Wells, Robert W. *Embers of October*. WI: Peshtigo Historical Society, 1995.

15 Holmes, Fred L. *Old World Wisconsin*. University of Wisconsin Press, 2002.

16 Sheahan, James W. and Upton, George P. *The Great Conflagration: Chicago: Its Past, Present and Future—Embracing a Detailed Narrative of the Great Conflagration in the North, South and West*. Chicago: Union Publishing Co., 1872.

17 Pernin, Rev. Peter. *The Great Peshtigo Fire: An Eyewitness Account*. State Historical Society of Wisconsin, 1999.

18 Sheahan and Upton, *op. cit.*

19 Donnelly, *op. cit.*

20 Pernin, *op. cit.*

21 Sheahan and Upton, *op. cit.*

22 Gess, Denise and Lutz, William. *Firestorm at Peshtigo*. NY: Macmillan, 2003. "The combination of wind, topography and ignition sources that created the firestorm, primarily representing the conditions at the boundaries of human settlement and natural areas, is known as the Peshtigo Paradigm. The condition was closely studied by the American and British military during World War II to learn how to recreate firestorm conditions for bombing campaigns against cities in Germany and Japan. The bombing of Dresden and the even more severe one of Tokyo by incendiary devices resulted in death tolls comparable to or exceeding those of the atomic bombings of Hiroshima and Nagasaki." https://en.wikipedia.org/wiki/Peshtigo_Fire.

In other words, Anglo-American military strategists deliberately planned and executed, with malice of forethought, the mass-murder of innocent civilians. This premeditated atrocity, during the commission of which almost 1 million non-combatants—mostly women and children—in two cities alone (not counting the fire-bombing of Hamburg) were burned alive, was a war crime beyond all historical parallels.

23 Great Chicago Fire. https://en.wikipedia.org/wiki/Great_Chicago_Fire.

24 The Chicago Fire (3). www.thunderbolts.info, Feb 09, 2006.

25 Pernin, *op.cit.*

26 Killingbeck, Dale. "Could a Meteorite or Comet Cause All the Fires of 1871?" MI: *Cadillac News*,

http://www.cadillacnews.com/articles/2004/08/23/news/news02.txt. August 23, 2004.

27 Brazo, Mark W. and Austin, Steven A. "The Tunguska Explosion of 1908." CA: Geoscience Research Institute, 1984.

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