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Focus On:
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What Was the Molten Metal Seen Pouring Out of the South Tower Minutes Before Its Collapse – Steel and Iron, or Aluminum and/or Lead?

by Simon Faulkner

A December 2001 paper, "Why Did the World Trade Center Collapse? Science, Engineering, and Speculation,"[1] dismissed early reports about molten steel at the demolished World Trade Center. Dr. Thomas W. Eagar, a professor of materials engineering and engineering systems at the Massachusetts Institute of Technology, and his graduate research student, Christopher Musso, pointed out that the theoretical maximum temperature of a building fire (maximum 1000°C / 1800°F) is not even close to the melting point of steel (approximately 1500°C / 2750°F). And they noted that the observed black smoke emanating from the Twin Towers was consistent with a typical oxygen-starved building fire.

Figure 1: The black smoke at the Twin Towers was indicative of the incomplete combustion usually associated with low-temperature fires. Office fires cannot melt steel, even given optimal conditions.

Eagar and Musso concluded that the actual temperature most likely remained below 650°C/1200°F. In so doing, they dispelled the myth that the jet fuel could have made the fires unusually hot, noting that it was "highly unlikely" that the temperature rose above 800°C/1470°F.

AE911Truth agrees that the jet-fuel-induced fires in the Twin Towers could not have melted steel. But because more recent reports confirm the presence of molten steel[2] and molten iron[3] both during and after the 9/11 event, it must be determined what actually melted those two metals and in so doing demolished two of the world's tallest steel-frame skyscrapers.

The Official Fire-Based Hypothesis Cannot Account for the Stream of Liquid Metal Seen Pouring Out of the South Tower

The National Institute of Standards and Technology (NIST) did document the flow of molten metal pouring out of the South Tower during the final seven minutes before its collapse, noting the accompanying "unusual

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bright flame" and "plume of white smoke."[4] However, NIST failed to investigate the phenomenon, dismissing it as molten aluminum from the crashed jet, which melts at only 660°C/1220°F.

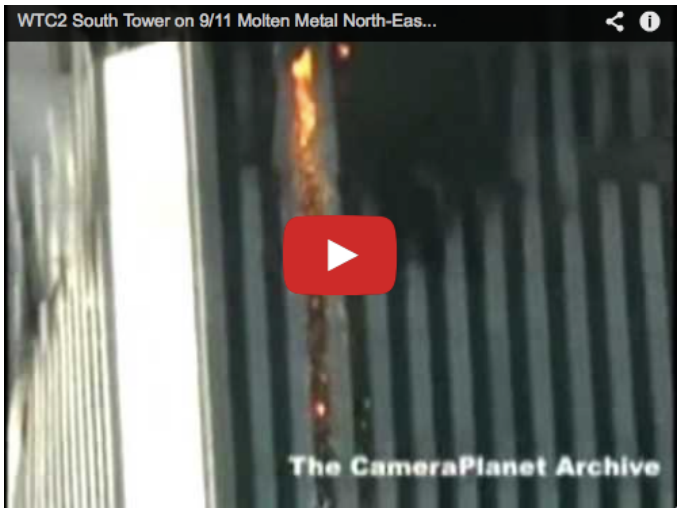

Figure 2: Yellow-white glowing molten metal is seen pouring from the South Tower just minutes before its collapse. Accompanying white smoke was sometimes visible. NIST did not investigate the phenomenon. Video may be viewed at http://youtu.be/OmuzyWC60eE.

NIST's hypothesis may seem plausible at first. But Dr. Steven Jones demonstrates in his 2006 paper "Why Indeed Did the WTC Buildings Completely Collapse?"[5] that the official government hypothesis is untested and implausible.

Dr. Jones' paper reveals that the initial bright yellow-white glow of the expelled liquid was consistent with a glowing stream of molten iron from "a nearby thermite reaction zone," and the expected white smoke (aluminum oxide off-gassing) supports that conclusion. NIST must rely on its claim of molten aluminum in order to validate its official fire-based explanation, because office fires cannot generate the extreme temperature required to melt steel or iron. The fundamental flaw of the aluminum hypothesis, though, is that the implied temperature of the white glow remains above 1200°C/2200°F, *regardless* of the metal involved. An independent researcher suggested that the molten substance could be lead from storage batteries,[6] but this explanation fails — as do all hypotheses based on alternative metals — because the temperature required for the yellow-white glow of the metal is beyond the capability of the building fire.

Figure 3: A thermite reaction generates yellow-white hot molten iron at well over 2,500°C/4,000°F and white smoke. This type of material can melt and cut steel beams.

Dr. Jones also notes that molten aluminum appears silvery as it melts at 660°C/1220°F, and that it remains silvery when poured in daylight conditions, regardless of the temperature. It is theoretically possible to continue heating liquid aluminum way past its melting point and into the yellow-white

Figure 4: Molten aluminum appears silvery when poured in daylight conditions, even if initially heated to the yellow-white temperature range in the crucible.

temperature range, but the office fire was not a plausible source for such high temperatures, and there was no crucible to contain liquid aluminum for continued heating. Put another way, even if the building fire could have somehow provided the needed temperature for the yellow-white glow, the unrestrained aluminum would have melted and trickled away before it could achieve such a temperature. This problem also rules out other proposed alternative metals — lead, for example — which have similarly low melting points.

Finally, Dr. Jones adds that even if liquid aluminum could have been restrained long enough to make it glow white, it would still have appeared silvery within the first two meters of falling through the air in daylight conditions, due to its high reflectivity and low emissivity.

Thus, the liquid metal seen pouring out of the South Tower could not have been aluminum, since it remains yellow in broad daylight, despite falling several hundred feet through the air.

NIST tries to circumvent this problem with the untested proposition that the observed glow could be due to the mixing of aluminum with combustible organic materials from the building's interior. But Dr. Jones has actually performed the experiments that soundly refute NIST's hypothesis. As he puts it, "This is a key to understanding why the aluminum does not 'glow orange' due to partially-burned organics 'mixed' in (per NIST theory), because they do *not* mix in! My colleague noted that, just like oil and water, organics and molten aluminum do not mix. The hydrocarbons float to the top, and there burn — and embers glow, yes, but just in spots. The organics clearly do *not* impart to the hot liquid aluminum an 'orange glow' when it falls, when you actually do the experiment!"

Figure 5: The liquid metal cannot be aluminum, for it remains orange-yellow, despite falling several hundred feet in broad daylight. NIST states that aluminum "can display an orange glow" if blended with organic materials, but Dr. Jones has experimentally invalidated this theory by demonstrating that organics and molten aluminum do not mix.

Dr. Jones *et al* confirmed the finding of molten iron in a 2008 paper, "Extremely high temperatures during the World Trade Center destruction,"[7] which documents their discovery of iron-rich microspheres in WTC dust samples from

two independent sources.

Figure 6: Several reports document the abundant iron-rich spheres in the WTC dust, confirming the formation of molten iron "during the event," according to an independent study of the South Tower dust by RJ Lee Group.

The Official Fire-Based Hypothesis Cannot Account for the Red-Hot Steel Beams and Pools of Molten Metal Seen During the First Weeks of Clean-up

Numerous professionals have testified that they saw "molten steel" beneath the Ground Zero rubble.[8] But they are not metallurgists, so how did they know enough to have identified it correctly as steel?

NIST dodges the answer to that question by claiming that there was no molten metal to investigate. NIST engineer John Gross, co-project leader of the official investigation, denied the existence of the witness reports.[9]

So we must look to the context, which provides a clear answer: The primary structural components of the WTC Towers were steel columns, steel beams, and steel floor trusses. Thus, steel was the *only* option that the witnesses had when they identified the unmistakable structural steel components coming out *molten* from under the rubble. Specific statements from these witnesses about "molten steel beams" and beams "dripping molten steel" dispel any remaining doubts.[10] The reported pools of molten metal under the rubble must also have contained some of that molten steel, and perhaps molten iron from thermitic cutting charges as well.

Dr. Jones addressed the evidence from yet another angle, pointing out that "we can rule out some metals based on available data."[11] A photograph taken 16 days after the 9/11 event shows an excavator grabbing debris that remains solid even though it is glowing in the salmon-to-yellow hot range.

Figure 7: An excavator picks up metal rubble from deep within the pile, and some of it is dripping a yellow-white hot liquid metal at or above 1,200°C/2,200°F. This is approximately double the temperature that can be reasonably expected from an oxygen-starved fire.

Dr. Jones notes that the *solid* metal, glowing in the 845°C/1550°F to 1080°C/1975°F temperature range, could not have been aluminum, lead, or other metals with low melting points, because none of them could have remained solid in this range.

The glowing debris was also dripping liquid metal that appears to have a bright yellow-white glow, which leads to the conclusion that the maximum temperature of the glowing rubble was probably above 1200°C/2200°F — consistent with the yellow-white hot glow of molten steel in a foundry. What makes this so remarkable is that anything over 1000°C/1800°F is above the maximum temperature of a perfectly ventilated fire, and is therefore way beyond the temperature limit of an oxygen-starved fire under the rubble.

The liquid metal could not have been aluminum because it would have had a silvery appearance as it dripped away at its 660°C/1220°F melting point. And we suspect that the powerful floodlights at the demolition site would have made it appear silver-colored, anyway, regardless of the temperature, due to the low emissivity and high reflectivity of aluminum. Dr. Jones adds that the metal in question also needed a "fairly low heat conductivity and a relatively large heat capacity" to remain red hot and even molten for several weeks under the rubble — two traits that identify the metal as steel or iron.

A New York warehouse (see Figure 8) stores similar, but solidified, Ground Zero debris, which supports the conclusion that the excavator at Ground Zero is picking up iron or steel. This solidified lump has the embedded remains of the steel beams seen all around the excavator. Also fused to the warehouse lump are steel reinforcing bars that look like the rods that are seen glowing hot in the claw (see Figure 7). These embedded remains display the characteristic reddish color of rusted iron or steel.

Figure 8: The reddish (rust) color of similar, previously-molten, Ground Zero debris, shown in this warehouse photo, indicates the presence of iron or steel.

The PBS documentary "Relics from the Rubble" shows a similar lump of fused molten concrete and molten steel, which became known as "the meteorite." The leader of the Ground Zero artifact recovery, architect Bart Voorsanger, describes the object, which must have weighed several tons, as "fused element[s] of steel ... molten steel and concrete — and all of these things ... all fused by the heat."[12]

Thermitic Materials Can Account for the Molten Iron and the Molten Steel

Since building fires cannot account for the reported molten steel beams in the Ground Zero rubble, the official fire-based explanation for the collapses of the WTC buildings must be false.

The official explanation also fails to account for the plenitude of iron-rich spheres, which happen to be yet another signature marker for a thermite reaction. An independent study by the RJ Lee Group actually used the previously liquefied iron-

rich spheres as a signature marker to distinguish the WTC dust from normal building dust, because they were so abundant.[13] Since thermitic materials can actually cut and melt steel beams,[14] evidence of this type of material in the dust provides a plausible explanation for the observed liquid iron and steel: Thermitic cutting charges[15] melt a slit through the steel beams via a directed blast of molten iron,[16] leaving behind the expected residues of molten iron from the charges and molten steel from the beams.

Chemist Kevin Ryan notes[17] that NIST violated the NFPA 921 investigative standard[18] by denying the evidence of molten iron and molten steel, and by refusing to look for pyrotechnic and explosive materials. This is especially suspicious, according to Ryan, because "NIST had considerable connections to nano-thermites, both before and during the WTC investigation."

Although NIST has failed to fulfill its duty, a team of nine scientists has investigated samples of dust from the collapsed Twin Towers and has documented the discovery of microscopic-but-intact remnants of nano-thermite. This type of energetic material can be easily tailored to be either pyrotechnic or explosive.

Chemist Dr. Niels Harrit leads the team of scientists, which includes Dr. Steven Jones and Kevin Ryan. Their investigation resulted in the 2009 peer-reviewed paper, "Active Thermitic Material Discovered in Dust from the 9/11 World Trade Center Catastrophe."[19] Harrit *et al* identify only one of the thermitic materials that must have been used, but they do not attempt to ascertain if the cutting charges were composed of this particular material. Chemical engineer Mark Basile has already independently verified the conclusion of their paper.[20] His study is still being completed and will hopefully be published by the end of 2014.

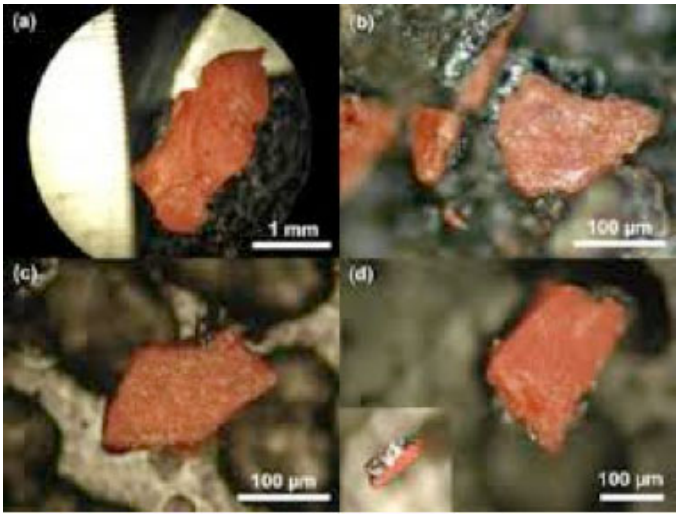

Figure 9: Dr. Niels Harrit leads an international team of scientists that documents that finding of red-gray nano-thermite chips in four independently collected WTC dust samples. This material ignites and forms the iron-rich spheres that were so abundant in the dust.

Kevin Ryan summarizes the molten metal evidence that we have reviewed here, as well as additional evidence in favor of thermitic materials, in his December 2013 article, "9/11 Truth: How to Debunk WTC Thermite at Ground Zero."[21] Ryan concludes that the evidence is "extensive and compelling," and that the suspected controlled demolition of the WTC buildings via thermitic materials is now "a tested and proven theory." And, as demonstrated above, thermite remains the only viable theory that provides a logical explanation for the liquefied iron and steel found in the World Trade Center rubble.

End Notes

[1]http://www.tms.org/pubs/journals/jom/0112/eagar/eagar-0112.html

[2] http://www.ae911truth.org/news/41-articles/347-high-temperatures-persistent-heat-a-molten-steel-at-wtc-site-challenge-official-story.html
[3] http://www.ae911truth.org/news/41-articles/348-previously-molten-iron-spheres-were-in-wtc-dust-reveal-use-of-thermitic-materials.html
[4]http://www.nist.gov/manuscript-publication-search.cfm?pub_id=101356
[5]http://www.journalof911studies.com/volume/200609/Why_Indeed_Did_the_WTC_Buildings_Completely_Collapse_Jones_Thermite_World_Trade_Center.pdf
[6] http://www.ae911truth.org/en/news-section/41-articles/879-debunking-the-911-truth-debunkers-the-saga-continues.html
[7]http://www.journalof911studies.com/articles/WTCHighTemp2.pdf
[8] http://www.ae911truth.org/news/41-articles/347-high-temperatures-persistent-heat-a-molten-steel-at-wtc-site-challenge-official-story.html
[9] http://youtu.be/fs_ogSbQFbM
[10] http://www.consensus911.org/point-tt-6/
[11]http://www.journalof911studies.com/volume/200609/Why_Indeed_Did_the_WTC_Buildings_Completely_Collapse_Jones_Thermite_World_Trade_Center.pdf
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[21] http://www.globalresearch.ca/how-to-debunk-wtc-thermite/5360964