

## **Sonic Booms in the Collapse of the Twin Towers?**

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Bazant et al have recently written an ambitious article entitled, "Collapse of World Trade Center Towers: What Did and Did Not Cause It?" [1]

In the Abstract of the article they claim that "the present analysis proves" that "allegations of controlled demolition by planted explosives" have no scientific merit. Among the many phenomena they attempt to account for through this non-explosion hypothesis (more specifically, this gravity-driven progressive collapse hypothesis) are the sounds that numerous witnesses claim to have heard and that they identified as explosions. Their explanation of these apparent explosions, as given in the Abstract, is as follows:

"The exit speed of air ejected from the building by the crushing front of gravitational collapse must have attained, near the ground, 461 mph (206 m/s) on the average, and fluctuations must have reached the speed of sound. This explains loud booms..."

In the body of the article the analysis is expanded. We are told that the "velocity of the crushing front near the end of North Tower crush-down is...47.49 m/s (110 mph)" and that "the velocity of escaping air near the end of the crush-down" may range from 461 mph to 761 mph. The authors admit that the vent ratio, and therefore the velocity of escaping air, is "hard to estimate" and is bound to vary from floor to floor, yet they conclude: "Clearly, the fluctuations of air speed can reach the speed of sound, and thus create a sonic booms [sic], which are easily mistaken for explosions (attaining supersonic speeds requires that the orifice through which the air is venting be shaped somewhat like convergent-divergent nozzles, and it is not impossible that such configurations might intermittently develop."

Despite the obviously speculative nature of these suggestions ("hard to estimate", "not impossible," "intermittently"), the authors of this article feel able to say confidently in their Conclusion that "the claims that...the loud booms heard during collapse, could be

explained only by planted explosives are proven to be false."

I have an interest in explosion explanations, having published an article in this Journal identifying 118 witnesses from the New York City Fire Department who believe they perceived explosions implicated in the collapse of the towers. [2]

I wish, therefore, to comment on the sonic boom explanation. I will make three short points, the third of which is my most important.

1. The first requirement of the sonic boom hypothesis is for shaped orifices ("somewhat like convergent-divergent nozzles") in the towers. It is difficult to know how we might test for the existence of these orifices. It would have been helpful if the authors could have directed us to photographic or other evidence, but they have not done so. Please note, in the absence of such evidence, that the greater the number of apparent explosions that must be explained, the greater the number of nozzle-shaped orifices that are required. What are the odds of finding enough shaped orifices to account for ten successive booms? (See FDNY witness, Craig Carlsen, 9110505.)

2. The authors likewise make no attempt to supply empirical evidence for the required air velocities of 461-761 mph. Are they thinking here of the strong winds associated with the towers' collapses? Presumably not. These winds were of far too great a duration to be caused by the "jetting out" of air trapped between floors:

"Then the force just blew past me. It blew past me it seemed for a long time. In my mind I was saying what the hell is this and when is it going to stop?" (FDNY witness, John Malley, 9110319)

"We were being thrown like literally off our feet, side to side, getting banged around and then a tremendous wind started to happen. It probably lasted maybe 15 seconds, 10 to 15 seconds" (FDNY witness, Keith Murphy, 9110323)

In any case, there are far more obvious explanations for these severe winds, so perhaps they are not what the

authors have in mind. Perhaps the authors are thinking of the puffs, often referred to as "squibs", which can be observed in videos and photographs? But these do not fit the case either, because they often appear many floors below the "crushing front" and therefore cannot be the escaping air their hypothesis requires. [3]

If they have some other body of evidence in support of the posited escaping air at the required velocities—other than the "booms" themselves, the cause of which is precisely the center of this dispute—could they please explain?

3. Thirdly, these extreme air velocities are, on this hypothesis, attainable only "near the ground," that is, near the termination of the collapse of the towers.

This is a claim that is easily testable. Since the firefighters' explosion testimonies have already been collected and are ready to hand, I shall restrict myself to an examination of them. A wider study would, of course, include numerous explosion testimonies from other people.

Here, then, is the simple question I have put to the FDNY collection: Of the 118 explosion references, how many clearly refer to events in the last stages of tower collapse, the point where the "crushing front" is "near the ground?"

The answer is: none. The number of cases is zero.

By contrast, there are many cases that refer to explosions just before the collapse or at the beginning of the collapse. Such cases are, in fact, the rule, as anyone will discover who takes the time to consult the collection.

Here are a few cases involving the South Tower:

Kevin Darnowski, 9110202:

"At that time I started walking back up towards Vesey Street. I heard three explosions, and then we heard like groaning and grinding, and tower two started to come down."

John Delendick, 9110230:

"We heard a rumbling noise, and it appeared that that first tower, the south tower, had exploded, the top of it. That's what I saw, what a lot of us saw."

James Drury, 9110098:

"We were in the process of getting some rigs moved when I turned, as I heard a tremendous roar, explosion, and saw that the first of the two towers was starting to come down."

Gary Gates, 9110065:

"I looked up, and the building exploded, the building that we were very close to, which was one tower. The whole top came off like a volcano..."

Edward Kennedy, 9110502:

"We took two steps, there was a tremendous boom, explosion, we both turned around, and the top of the building was coming down at us. With this I just turned to Richie and said run."

Joseph Rae, 9110294:

"We started walking north to just about the second footbridge, which would be 6 World Trade, and all of a sudden we heard the explosion and the building started to come down and I ran..."

Patrick Scaringello, 9110030:

"I started to treat patients on my own when I heard the explosion from up above. I looked up, I saw smoke and flame and then I saw the top tower tilt, start to twist and lean."

Thomas Vallebuona, 9110418:

"...I heard 'boom', an exploding sound, a real loud bang. I looked up, and I could see the Trade Center starting to come down, the south tower..."

Conclusion:

It is incorrect, therefore, to state that "the claims that...the loud booms heard during collapse, could be explained only by planted explosives are proven to be false". The authors have proven no such thing. At best, they have indulged in a brainstorm about possible causes of loud sounds in a gravity-driven collapse. The observations predicted by this brainstorm are in direct opposition to the actual observations of numerous, experienced, on-the-scene witnesses.

Notes:

1.

<http://www.civil.northwestern.edu/people/bazant/PDFs/Papers/00%20WTC%20Collapse%20-%20What%20Did%20%26%20Did%20Not%20Cause%20It%20-%205-2007.pdf>

2.

[http://www.journalof911studies.com/articles/Article\\_5\\_118Witnesses\\_WorldTradeCenter.pdf](http://www.journalof911studies.com/articles/Article_5_118Witnesses_WorldTradeCenter.pdf)

3.

[http://www.whatreallyhappened.com/IMAGES/wtc2\\_collapse\\_pops.wmv](http://www.whatreallyhappened.com/IMAGES/wtc2_collapse_pops.wmv)