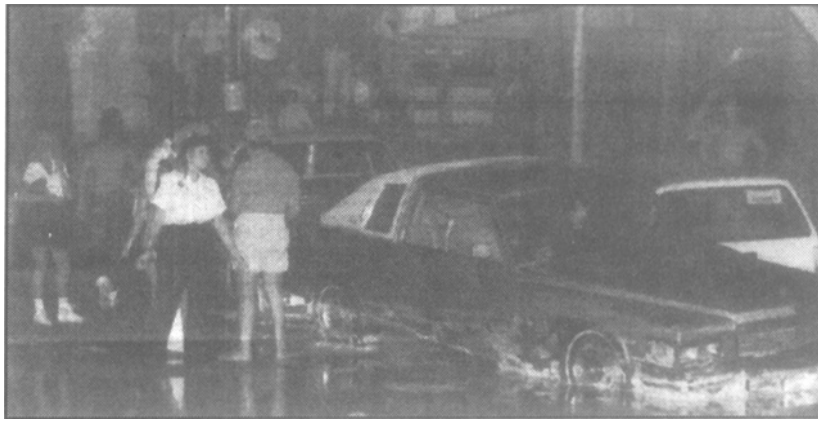
THE DAYTONA BEACH MYSTERY WAVE

by Patrick Huyghe

It all began when a giant wall of water rose from a calm sea and came smashing down on Daytona Beach, Florida at 11 pm on Friday, July 3, 1992. The freak wave wrecked havoc on the "World's Most Famous Beach," swamping hundreds of parked cars and injuring 75 people, according to initial reports. By the time the story reached the other side of the "pond," however, tabloids such as the London Daily Mail had embellished certain details of the story. The Brits were told that the wave had "brought terror" as "thousands fled." [1]

I'm told the story appeared on CNN and was picked up by the wire services, but I didn't learn of this incident until several months later. By this time there were reports linking the "rogue wave" to a "falling object" seen by a boater who had been offshore at the time. [2] Frankly, I found this possibility particularly intriguing. Scientists are always talking about the likelihood of a giant asteroid smashing into us one day, causing massive destruction and death, but they generally seem to disregard the accompanying probability of smaller celestial objects impacting the Earth with far greater frequency, and causing more localized, small-scale damage. I wondered if such an object had been the cause of the Daytona event and for the next year I kept an eye out for further reports on this mystery wave in the scientific literature. But nothing appeared anywhere on this remarkable incident, so in December of 1993 I decided to look into it myself.



Minutes after rogue wave hits Daytona Beach, boardwalk patrons survey the damage. Photo by Mike Orlando.

I assumed the best coverage of the event had been in Daytona itself and got hold of the six articles on the "giant wave" that appeared over a one week period in the *Daytona Beach News-Journal*. The first story [3] appeared on July 4th and recounted several personal encounters with the "rogue wave." Sgt. Bill Marshall of the beach patrol was on duty in his Jeep Cherokee near the Boardwalk when he saw something out of the corner of his eye. "I turned and looked and saw a huge wave at least 10 or 15 feet high," he told the reporter. "It washed completely over my vehicle and pushed me into another car. It just washed out a whole line of cars. There was a full-sized Chevy van in front of me that did a complete 360 when the wave hit."

Roy Bennett and his wife had an even bigger scare. They had just left the Broadwalk, where they had been playing video games, for a walk down on the beach. At one point Bennett happened to look out over the ocean. "I saw this huge wall of white water," he said. "It was real quiet. I told my wife to run and I ran behind her. If we hadn't run, we'd have been pinched in between cars, or cars would have been on top of us." Bennet reported seeing other people bleeding and a lot of smashed car windows. Others reported seeing sailboats on top of cars.

John Kirvan, Volusia County's chief beach ranger, saw it too. "It was the strangest thing I've ever seen down here," he said. "I've got men who've been here 30 years and they've never seen anything like it." Though there had been several minor injuries, Kirvan knew of no serious ones. By one o'clock in the morning tow trucks and rangers had pulled most of the vehicles out from the wet sand. Later they would find that some toll booths had been washed off their foundations and that trash cans and barricades had been swept out to sea.

Undersea Earthquake

On Sunday July 5th, the front page of the *News-Journal* displayed a photograph of the aftermath of the incident taken by a patron of the Main Street Bar. [4] The headline unveiled the first official explanation for the incident: "Undersea landslide blamed for giant wave." After the wave hit, National Weather Service officials had contacted the U.S. Geological Survey in Washington, D.C. seeking a possible explanation for the rogue wave and had been told that an undersea landslide might have been responsible.

Frank Baldwin, a senior seismologist for the USGS, later spoke to reporter William D.A. Hill about this theory. The belief that the wave was caused by a landslide acompanied by shifting sands, he explained, is based on what oceanographers know of the ocean floor in the vicinity of Daytona Beach. He did note that while undersea landslides are common in the area, rarely do they cause waves like the one that had hit Daytona. Based on U.S. Coast Guard reports from boaters who said they experienced no unusual activity, the wave was thought to have been generated by undersea activity no more than 10 miles out. The Coast Guard and Air One had conducted a search for people who might have been swept out to sea by the wave but they had found nothing but glassy seas.

What had hit Daytona was not a tidal wave, Baldwin explained. If it had been, it would have affected the entire coast of Florida and a good part of the Eastern seaboard as far north as Norfolk, Virginia. Nor did it have anything to do with a tsunami, he said, the earthquake-triggered wave common to the Pacific Ocean. Baldwin also noted that

there had been no seismic activity at the time. "We don't even have a minor shock that might explain it," he said.

By Sunday just what had happened at the start of the weekend was a bit clearer. The wave, said to have measured about 250 feet wide, had a vertical height of about 18 feet in the area of the Boardwalk and the Main Street Pier, but affected to a much lesser extent a 20-or-so mile stretch of coastline from Ormond Beach in the north to New Smyrna Beach in the south. Everyone was thankful the wave had not hit one day later, on July 4th,. "We are truly lucky this thing happened at 11 pm Friday night and not 11 am this morning," chief beach ranger Kirvan told the reporter. "We'd be counting the dead if it had." In fact, although 75 people were said to have been injured, the chief could not confirm a single hospital admission from the wave.

The *News-Journal* story ended with comments by two weather officials. Fred Gonzalez of the National Hurricane Center in Coral Gables, Florida said that their equipment showed no record of swells in the Atlantic that night. And 48 hours of weather data before the incident showed no storm activity capable of producing such a wave. In fact, the seas had been calm with winds of less than 15 knots as far as 500 miles out. The wave occurred in seas with wave heights of just one to two feet.

"Our buoys off Daytona don't even show the big wave coming," Gonzalez said. "The buoys that should record something like that are 100 miles and 40 miles off Daytona, but they show nothing at all." Never in his 33 years with the weather service had Gonzalez ever heard of anything like it. "Nobody here has any idea what caused the wave," he said.

Mark Albertelli, a National Weather Service meteorologist at the Daytona Beach Regional Airport, was stumped as well. At the time of the big wave he had been on the beach in St. Augustine, about 50 miles to the north of Daytona. "It was calm," said Albertelli. Other weather stations along the coast reported calm seas as well.

By Tuesday oceanographers and geologists were surveying the beach to determine the cause of the wave, according to the next *News-Journal* story. [5] Oceanographer Jeff List of the U.S. Geological Survey's Center for Coastal Geology at St. Petersberg was calling it

Of explanations there was no shortage, from underwater earthquakes and landslides, to a squall surge, oceanic "burp" and meteorite.

"an extremely rare event." In fact, he admitted, "No one I've talked to has ever heard of it happening here before."

Meanwhile, Robert Dean, chairman of the University of Florida's Coastal and Oceanographic Engineering Department, seemed to buy into the underwater landslide hypothesis, explaining that a part of the continental slope that deepens very gradually must have become unstable in one spot. On Monday, scientists in his coastal engineering department had simulated the effects of the giant wave with one of their five wave-making machines complete with model cars being tossed around by a wall of water. Dan Hanes, an associate professor of coastal engineering in the department who has studied waves for 10 years, found the underwater landslide idea plausible but not convincing. "There may be something else out there that we don't know about," he is quoted as saying. The *News-Journal* mentioned a few of the other possibilities: an underwater explosion or military test, a meteorite, or a nuclear submarine.

Oceanic Burp

By Wednesday, the newspaper was still focused on the undersea landslide theory and was presenting an explanation for how a landslide could have caused such a wave. It was due to a "Huge undersea 'burp,'" according to the headline. [6] The expert who had proposed the oceanic "burp" theory was Richard Meyer, a veteran oil industry geologist with Getty and Texaco who was now the natural resources manager for Volusia's Department of Environmental Management.

Meyer thought the wave had been caused by a tremendous upsurge of natural gas beneath the Atlantic. He explained how oil industry executives seeking new fuel sources had documented a phenomenon called hydrates, which are icy mixtures of water and gas found in waters deeper than 1,600 feet. The hydrates form a hard mass that can trap liquids and gas in cavities below it. Meyer's

educated guess was that a hydrate had formed along the continental shelf off Daytona Beach and captured methane gas that forms naturally in oceanic mud. Then last week, he suggests, an undersea landslide had smashed through the hydrate and released the trapped gases, which surged upward at a spectacular pace and produced this enormous wave energy.

The *News-Journal* ran a second story on the "renegade wave" that day, which told of researchers who had examined its traces. [7] Oceanographer List and his colleague Mark Hansen of the USGS at St. Petersburg had spent four hours interviewing witnesses and surveying the beach for high water marks, which they could use to make an educated guess about the height and width of the unusual wave. But Monday's heavy rains had obscured most signs of the giant wave. Relying more on reports from observers, they concluded that the wave was highest in the Main Street area of Daytona, but doubted that it was as high as 18 feet. List thought no definitive cause would be found "unless we get real lucky," he said. The paper also reported that only 20 injuries, all minor, had been confirmed, that no one had been reported missing, and that most of the automobiles damaged that night had been parked on the beach itself, which is typically used as an overflow parking area.

List then apparently got lucky. A few days later the *News-Journal* reported that the oceanographers had changed their minds about the probable cause of the "rogue wave." [8] They no longer thought an undersea landslide was responsible. A landslide severe enough to trigger the wave would probably have caused a tremor and been picked up on the USGS seismic monitoring network, explained List, and nothing was picked up.

List also discounted some other theories that had been bandied about. He saw no evidence for Meyer's gas "burp" explanation, or for the submarine theory that some locals, including a few with Naval experience, had proposed. The submarine theory had surfaced along with President George Bush on the 4th of July. The President had visited Daytona International Speedway that day and some locals recalled reports that U.S. Navy submarines had been stationed offshore when President Ronald Reagan had visited in the 1980s. Could a

submarine surfacing rapidly just offshore have caused such a wave? Not likely. List could not fathom just how a submarine could have triggered the big wave.

Squall Surge

List's new explanation was that a freak storm had caused the rogue wave. A storm? I thought storms had been ruled out as a possible cause for the big wave from day one. Well, not exactly, it seems. List had now uncovered new evidence to support the weather theory. The USGS researchers learned that a storm system had moved rapidly down the Atlantic coast on the night of July 3rd and had stopped around Flagler Beach, shortly before the wave came ashore.

"We looked into the meteorologic data and, amazingly enough, it did show a very long squall or thunderstorm line moved (sic) down down from Georgia," List told *News-Journal* reporter Denise O'Toole. "The timing of this storm coming south was perfect for when the wave hit Daytona Beach."

List noted that a tide gauge near St. Augustine had recorded a "blip" around the same time as the wave. Further corroboration came from reports that the wave had hit the coast from north to south, rather than hitting all at once directly from the east. When List modeled the event he found that it would take a storm system moving at least 30 miles an hour parallel to the coast over water about 20 feet deep to produce the freak wave. List said precisely those conditions existed at Daytona on July 3rd, 1992.

List's position had not changed when I interviewed him in December of 1993. "We still believe it was caused by a squall-line surge phenomenon," he said. "It was a fast moving squall line that moved down the coast and kind of pushed up a big bulge of water ahead of it. The squall line then stopped in its tracks about 10 miles north of Daytona Beach and a large wave kind of propagated away from that squall line and slammed into Daytona Beach." List and his colleagues were preparing a paper on their theory [9], but they had been beaten to the punch by a team of scientists from the University of Florida at Gainesville.

Robert Thieke, an assistant professor in the department of Coastal and Oceanographic Engineering, Robert Dean, chairman of the department, and Andrew Garcia, a research oceanographer with the Coastal Enginneering Research Center at the U.S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi, had presented the same squall-line surge explanation for the Daytona event at WAVES '93, the second international symposium on ocean wave measurement and analysis, which was held in New Orleans in July of 1993. [10]

It seems that a few days after the National Weather Service's original report that there had been no large scale storm activity anywhere near Daytona Beach on the 3rd of July, the first observations of relatively small scale meteorological activity along the Florida shoreline began to trickle in. "These accounts," states Thieke's report, "include the observation of large scale thunderstorm systems with several waterspouts offshore of Jacksonville, a waterspout observed on the beach just north of St. Augustine, a sudden increase in wind speed from near calm to approximately 40 mph measured by a shipboard anemometer in St. Augustine marina, and sudden changes in wind speed and temperature along Crescent Beach."

Their analysis of tide gauge data from Savannah, Georgia to Miami showed nothing except one small anomalous wave of about 1.4 feet at St. Augustine two hours before the impact at Daytona Beach. This focused their "attention on a relatively rapidly moving squall line which formed over inland Georgia and South Carolina and progressed from north to south along the Gerogia and Florida coastline on the evening of 3 July." They derived the approximate position of the squall line from sequential radar images obtained from the National Weather Service in Daytona Beach. Though these radar plots only indicate intensity of precipitation, Thieke felt that they delineated the progress of the squall line fairly accurately. The plots allowed them to estimate the southward propagation speed of the squall line at 30 mph. The 10:25 plot shows the final position of the squall line north of Daytona Beach. The next image, at 11:25, shows that the squall had largely dissipated.

When Thieke, the first author of the paper, first heard the news reports of the wave, he simply did not believe it. As a result he did not go down to Daytona until several days later, a situation he now regrets, as the wave's water marks would have been much more apparent. The unusually high debris line the wave left behind was still quite visible in some spots, however. The researchers found that the maximum wave runup that night had occurred just north of the Main Street Pier and extended about 6.1 feet above the high tide mark. The wave struck at nearly high tide when the the mean high water level or wave run-up is normally 4.3 feet.

Though the wave impacted almost 30 miles of coastline, according to the researchers, significant wave run-up was confined to a narrow region about 5 miles in width and roughly centered on the Daytona Beach pier. But when Thieke and his colleagues used a laboratory model to calculate the wave height based on their knowledge of the wave run-up data, the height of the breaking wave came out to 3.8 feet, substantially less than any observation made by witnesses in Daytona Beach. "Obviously," Thieke explained to me in an interview, "this simple model is not sophisticated enough to capture the complete effect of the wave running up the beach."

Though rogue waves like the one that hit Daytona are rare, according to Thieke, they are apparently not without historical precedent. The large wave that struck the southern Lake Michigan shore on June 25, 1954 and resulted in 7 fatalities, is thought to have been produced by a squall line similar to the one that hit Daytona Beach. A similar wave propagation mechanism has been invoked to explain the large wave which struck southern England in 1929 and also claimed fatalities. Numerous other, though smaller, squall-line surges have also been reported on the Great Lakes.

"Squall-line surges," Thieke explains, "are different than storm surges which are caused by wind stress blowing over a large area of water for long periods of time. In squall-line surges a pressure disturbance causes the wave. So while a storm surge may last for several hours, or even half a day, squall-line surges are over and done with in about a minute." Thieke says he is over 90 percent confident that such

a squall-line surge caused the big wave that momentarily soaked Daytona Beach on the of July 3rd, 1992.

Meteorite

Others are not quite so sure. "I think Thieke's all wet," Neil Opdyke, a University of Florida geologist, told me in December of 1993. "It wasn't a damn storm, I can tell you that right now. It can't be a storm coming down the coast because that would require the wave to make a right angle turn, and waves don't do that. And a wave traveling from north to south is not going to give you a wave front that is highest at one point on the coast. Besides, we asked the Navy and the Navy said there was no chance it could be a storm. But Doug Smith and I are the only ones to come out of the closet and say that it had to be something other than a silly storm."

Doug Smith is Opdyke's colleague in the geology department. When Smith, who is director of the University of Florida's earthquake seismograph network, got word of the wave he immediately queried the network stations and found that there had been no seismic event. He then sat down and discussed the situation with Opdyke, and together they considered the possibilities. It could not have been an undersea landslide; the continental shelf off Florida is too broad and shallow and without the extreme bathymetric features needed to contribute to a landslide. The idea that a seepage of natural gas had caused a pressure wave was also unlikely as the area is devoid of petroleum opportunities. They thought that some kind of military testing was a possibility, but after checking with a former student who was now with the Naval Research Lab in Mississippi, they learned that this was not the case. And like Opdyke, Smith also felt the freak storm theory was "too contrived."

The most likely explanation for the wave, they finally concluded, was a meteor impact. "It looked like an impact," explains Opdyke, "because it peaked at one point on the coast and fell off in each direction up and down the coast."

A few weeks later Smith was giving a talk to a local Rotary or Lions Club – he doesn't remember which – when he said that short

of a meteorite impacting the area, they were frankly a little puzzled about what the cause of the big wave might be. Then one member of the audience, a lawyer, mentioned that he had a client who had been piloting a boat at the time, had seen a large meteorite, and then had to deal with the wave almost swamping his boat. He told Smith that he would have his client call him.

"Sure enough the guy did call," Smith recalled in my interview with him. "He was not the sort of guy who was trying to find his 15 minutes of fame or anything. He didn't want any publicity. He had read about the big wave, but did not associate it with what had happened to him. But with prompting he was able to recall some details of the event; it had never occurred to him to think about the angle in the sky, the direction, trajectory, or anything like that. He had just seen something while piloting a boat up to St. Augustine and was actually offshore Daytona at the right time. He said that as soon as he had seen the meteorite he called his wife to tell her because he had never seen anything like it. It was an offshore radio linked call and the time of the call was recorded on the telephone bill. The time fit perfectly with the timing of the event. And so we plotted his location on a map and then based on his description, we were able to reconstruct an impact point."

I had been trying to learn the identity of this boater for weeks, but without success. No one knew the man's name or phone number. I really needed to talk to the eyewitness myself, as the second-hand accounts of his sighting varied somewhat. But here, finally, was someone who had spoken to him directly. So when Smith gave me his name and a number where I might be able to reach him, I felt that the solution to the mystery might be in my grasp.

It took some time, but at the end of January I finally spoke to the eyewitness myself. His name is Bill Scheffey. He lives and works in St. Augustine, he told me, and he doesn't mind being identified as long as his words are not distorted. "I never saw it hit the water or anyhing, just going over," he explains. "They said on the news, 'Offshore boater sees flaming object crash into the sea.' I never saw anything like that." I asked him to tell his story from the beginning.

"I had picked up a 41-footer in Fort Pierce and was bringing it up to St. Augustine," he said. "I was northbound, probably 5 miles east of Daytona Beach. It was a calm night. I didn't have the sails up; I was under motor. Any time I had any decent wind I would put the sails up. I was alone on the boat. I would guess it was about 10 pm give or take 15 minutes. I was looking at the lights there in Daytona and turned around, looking over my shoulder, always checking around for other boats."

Then he saw the meteor. Actually, he heard it first. "It made a swooshing sound," he recalls. "I looked up and could not believe it. I had never seen one that big that close. It was just ahead of me, to the north, about 30 degrees above the horizon. It was traveling from west to east. If you took a grapefruit and held it out at arms-length that was the size of it. It was round. Its color was reddish and white and it was in flames, which were trailing back behind it another grapefruit length. It was strange, because there were sparks, too. It looked like it was following a pretty even path, not a falling one."

When the object disappeared to his right, Scheffey picked up the phone on the boat, called his wife at home, and told her what he had seen. Then about 15 or 20 minutes later, he was hit with the wave--or a wave. "I looked off to my right and saw this wall of water building up right next to me," he recalls. "I would guess it was about 20 feet high, about half the size of the mast which was about 45 feet. But it looked like it was 120 feet at the time. It scared the hell out of me. So I grabbed the helm and spun the boat into the wave. I went up at about a 45 degree angle. It hit me seconds after I first saw it. I didn't see it coming from a long way off. I didn't have a lot of time to prepare for it. Not much time at all. I kicked the helm over and went up over the wave and came down on the other side, like I was on a 41-foot skate-board. Then I looked for the next one, but there wasn't any. It was just that one."

I was impressed by Scheffey's testimony and his reluctance to jump to conclusions. "I heard a couple of days later that a wave had hit Daytona," he said. "I didn't put it together that it might have been the meteor that hit that had caused the wave. I didn't think about that." I pressed him further. Do you now think it was the meteor you

saw that produced the Daytona wave or a freak storm? "I really don't have enough knowledge to say one way or another," he replied. I asked Scheffey if he had the telephone records to pin down the time he had seen the object and spoken to his wife. He said that the boat's owner had those records, but agreed to get in touch with him and find out the time of the call for me. He would call back later.

The geologist, Doug Smith, had heard basically the same story from Scheffey a few weeks after the actual incident. Afterwards Smith and Opdyke had contacted their university public affairs department and had them issue a press release. [11] "Two University of Florida geologists have new evidence to indicate that a giant wave that struck the Florida coast near Daytona Beach on July 3 was caused by a meteorite," it began. The geologists, explained the release, had been contacted by a boater "who reported seeing a large object and hearing a loud 'whoosh' in the sky about eight miles offshore from Daytona Beach just after 10 p.m. on July 3. Smith and colleague Neil Opdyke have estimated that a meteorite about one meter in diameter striking the ocean about 11 miles northeast of Daytona Beach could have caused the 15-foot-high, 20-mile long wave..."

The geologists had released this information in the hopes that publicity about their theory would flush out others who might have seen the meteorite as well. "It was published in the local paper," says Smith, "and it generated an incredible number of weird tales about flying saucers, and from people who wanted to find the meteorite and market it. But we never found anybody else who had actually seen it."

The press release had mentioned that if a large metallic meteorite had settled on the ocean floor, it might be possible to find and recover it. The researchers actually hoped to enlist the Navy's help in locating the meteorite. Smith and Opdyke did, in fact, go back to their Navy contacts and asked if the Navy might contribute some kind of detection effort to find evidence of the meteorite. "We looked at bathymeteric maps," says Smith, "and it's probably only 55 or 60 feet to sea bottom there, 10 to 12 miles out, and we could place its impact to about a four square mile zone. So a search would not have been too difficult. But we didn't get anywhere with the Navy and there was no

way we could do this on our own," says Smith. So the effort was dropped.

Top Secret Check

I wondered if the Navy's top-secret system of underwater listening devices, which literally span the oceans, had perhaps tracked the meteorite as it dove into the water. Since Smith had Navy contacts, I thought he might have asked. He did. Do you know if the Navy detected it, I asked him. "Not outright," he said. "I think we were given an answer in a kind of sideways fashion, with a series of grunts or facial smirks, suggesting 'yeah, we detected it, but we are not telling you we detected it.' So just in the manner of things we were told that we could rest assured that our curiosity was pretty much resolved. I think if it had been otherwise we would have been told."

This was tantalizing, but again, not definitive. I decided to try the impossible: get confirmation of the event directly from the Navy. An affirmative response would clinch the case for the meteorite. So I made a series of phone calls and was finally directed to the agency in charge of underwater surveillance data–the Space and Naval Warfare Systems Command. I spoke to a public affairs person, explained what I was after, and provided the time, date, and place of the event. The public affairs person, Loretta Disio, said she would check and call me back. I wasn't hopeful.

But a little over a week later she called back. "We didn't have any data from that date," she said, "and there is no way to look back and see if it was detected. In any case one of our oceanographers believes that [such an event] would have blended into the background." The spokeperson then expressed the hope that none of this would appear in print. I said that it probably would.

That the Navy would no longer have the data on hand from a year and half before was no surprise, but I found the oceanographer's comment somewhat questionable. I guess it would depend to some extent on the size of the object. The University of Florida press release had mentioned that the object had been estimated as measuring about a meter in diameter. That's about the size of a bushel basket. When I

asked Smith how he had arrived at this estimate, he told me that it had actually come from Eleanor Helin at the Jet Propulsion Laboratory in Pasadena, California. Helin's specialty are asteroids and other extra-terrestrial objects that impact the Earth.

So I called Helin. It seems the wave had sparked considerable interest among some scientists. "I've been very interested in this event," Helin admitted. "Some of my colleagues at Lawrence Livermore are also. I can't give you their names, but you would be blown away by the people who think this is an important event." Helin expressed regret at not having spent more time on it. She, too, had tried to get information out of the Navy, but was unsuccessful. "I still think that the event was probably an impact of a smallish body," she says.

The Other Shoe Drops

Early in February, 1994 the boater, Bill Scheffey, called me back. He had obtained the telephone records from the owner of the boat. It turns out he had called his wife about the meteorite at 10:33 p.m.

"At 10:33 on the night of the 3rd," I repeated for confirmation.

"No, it was the 4th," Scheffey replied.

"The fourth?" I said, stunned. "But the big wave hit Daytona on the third."

"I'm positive it was the night of the fourth, because I saw fireworks that night."

"Are you sure? People have a tendency to set off fireworks early when the fourth falls on a weekend."

"No," answered Scheffey. "I'm sure it was the fourth. I drove down to pick up the boat in Fort Pierce on a Friday and got home on Sunday at 2 pm. That would put me off Daytona on Saturday night."

"That was the fourth," I repeated, obviously disappointed.

"I'm sorry," said Scheffey. "That blows your whole theory."

Well, yes, Smith and Opdyke's theory, and my conviction that they were right, that the Earth sometimes suffered minor damage from the impact of extraterrestrial objects, and that this Daytona event was a case in point.

So I called Smith and gave him the bad news. "I'm really disappointed," he admitted, "because in my two conversations with him and in my conversation with the man who was my link to him, it was always a discussion about the 3rd of July. There was never any question in my mind that we were talking about the same day. I'll be darned. That scrubs the only evidence we have for a meteorite then."

Indeed. So the meteorologists–List, Thieke, and the rest–must be right; it must have been the weather, a squall-line surge that had caused Daytona's big wave. But Smith wasn't willing to concede this; for him, the big wave had become, once again, a mystery.

Frankly, I'm still puzzled, too. Even if I accept the weather explanation for the big wave that hit Daytona Beach on the 3rd of July, I find myself unable to dismiss Scheffey's testimony, which would indicate that on the following night, the 4th, a meteorite, unseen by anyone but this boater, or perhaps dismissed by some as a fireworks display, hit the waters of the Atlantic, and produced another wave that nearly swamped his boat but had essentially no effect on Daytona Beach itself.

Two nights. Two waves. One squall-line surge. One meteorite. A most curious coincidence. It all leaves me quite astonished at the multitude of the world's natural wonders–and how little scientists are in agreement about them.

Footnotes

1. "News ripples felt across Atlantic," *Daytona Beach News-Journal*, July 8, 1992.
2. "Wave ** Waves ** Waves **" by William Corliss, *Science Frontiers*, No. 84, Nov-Dec 1992, picked up from "Rogue Wave Smashes into Beach," *Hawaii Tribune-Herald*, July 5, 1992, and from "Daytona Beach Mini-Tidal Wave," by Becky Stein in the *Louisiana Mounds Society Newsletter*, No. 52, October 1, 1992.
3. "Rogue wave hits beachside," *Daytona Beach News-Journal*, July 4, 1992.
4. "Undersea landslide blamed for giant wave," by William D.A. Hill, *Daytona Beach News-Journal*, July 5, 1992.
5. "Scientists study renegade wave," *Daytona Beach News-Journal*, July 7, 1992.

6. "Expert: Huge undersea 'burp' caused wave," by Valerie Berton, *Daytona Beach News-Journal*, July 8, 1992.
7. "Researchers roll into town to examine renegade wave," by Denise O'Toole, *Daytona Beach News-Journal*, July 8, 1992.
8. "Freak storm may have caused rogue wave," by Denise O'Toole, *Daytona Beach News-Journal*, July 11, 1992.
9. "Large wave at Daytona Beach, Florida, explained as a squall-line surge," by Asbury H. Sallenger, Jr., Jeffrey H. List, Guy Gelfenbaum, Richard P. Stumpf, and Mark Hansen, *Journal of Coastal Research*, in press.
10. "The Daytona Beach 'Large Wave' Event of 3 July 1992," by Robert J. Thieke, Robert G. Dean, and Andrew W. Garcia, *Proceedings of WAVES '93.*
11. *UF News*, by Joe Kaye, August 3, 1992.