

# Auckland Meteorite

Jennie McCormick

The morning of June 12, 2004 dawned fine and clear over Auckland city and the surrounding suburbs. A perfect Saturday morning for taking part in school and club sport or relaxing with a flat white coffee on the pavement outside a local café.

Brenda Archer had just finished clearing away the breakfast dishes in her Ellerslie home while her young grandson played happily nearby.

At 9.30 am and without warning, a huge explosion and an accompanying dust cloud suddenly filled her lounge.

“Phil what on Earth did you put in the ceiling, because it has just exploded?” yelled Brenda to her husband Phil who had heard the noise and was quickly making his way down the hallway.

The lounge resembled a bomb site, with ceiling debris strewn across the floor, coffee table, and lounge suite. The leather couch sported a new blackened tear and a 150 millimeter square hole framed the blue morning sky. A fine plaster dust slowly settled upon everything in the room and the culprit responsible for the mayhem was nowhere to be seen.

A dark, still-warm 1.3 kilogram piece of rock had concealed itself under the computer desk in the corner of the lounge until Phil Archer spotted it and announced, “I think it’s a meteorite!”

That was how Auckland Meteorite made its grand entrance into the Archer’s lives.

It is now included as one of those rare and unusual events in New Zealand and world astronomical history and is a sought-after specimen by meteorite collectors from around the world. With a current price tag of 40,000 New Zealand dollars - and expected to rise further - this space visitor is definitely worth more than its weight in gold.

Every day well over one hundred tons of Solar System debris enter the atmosphere above the Earth. But almost all of that material burnt up in flight, with only the largest pieces ever reaching the surface to become meteorites.

On average, 33% of meteorites found have been witnessed in ‘fall’, with the majority of meteorites classified as ‘finds.’<sup>1</sup>

Meteorites such as Auckland Meteorite originate from the debris of the formation of the early Solar System. The majority are fragments of the core or crust of asteroids but this depends on the composition of the object. There are a few meteorites that are believed to come from comets and a very small number from the Moon and Mars. The latter are extremely rare and command astronomical



Above clockwise: Ceiling hole, lounge, roof hole.

COURTESY OF GRANT CHRISTIE

prices on the world meteorite market.

New Zealand meteorite expert, Dr Joel Schiff, Editor of Meteorite magazine is confident that Auckland Meteorite has not come from the Moon, Mars or a comet and believes this specimen to be an 'Ordinary Chondrite' - in layman's terms, a Stony Meteorite. These meteorites, typically asteroidal in origin, contain tiny spherules of rapidly cooled melted silicates such as olivine, diopside and serpentine. They also contain small amounts of iron and tiny nickel flakes can often be seen in their matrix.

**STONY METEORITES ARE BROKEN INTO FOUR SUBGROUPS**

Ordinary chondrites	Enstatite chondrites
Carbonaceous chondrites	Achondrites

We will not know which group Auckland Meteorite belongs to until a full analysis of its chemical composition has taken place; unfortunately this could be some way off as its future has yet to be decided.

What makes Auckland Meteorite such a desirable and an exquisite "must have" trophy for the world's meteorite collectors?

**Rarity**

New Zealand has a narrow land mass flanked by two major oceans: the Tasman Sea and the Pacific Ocean. Greater Auckland is narrower still, with the deep water Waitemata and much larger Manukau Harbours encasing an 11 kilometre wide isthmus. The chances of a meteorite landing in an Auckland suburb and not in the surrounding water mass are slim "Winning Lotto would have better odds than a meteorite crashing through your ceiling."

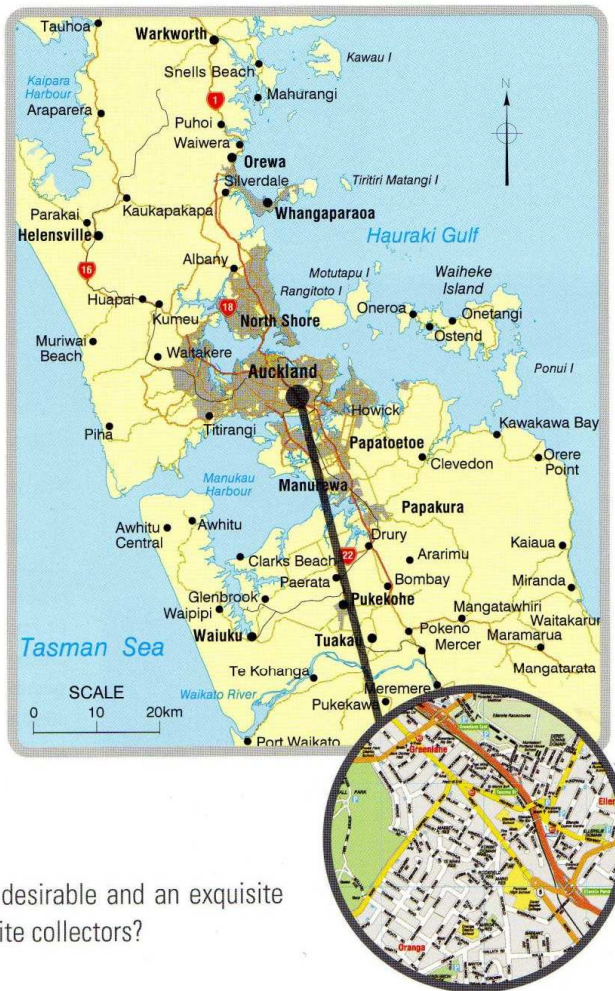
This is the first time in New Zealand history that such an event has taken place and brings the total number of meteorites found and classified here to nine.

Dr Walter Branch of Branch Meteorites has collated

data on meteorite strikes involving humans, animals and man-made objects. The reports predate 1775 and include Auckland Meteorite as the last entry in 2004.

Worldwide, 102 man-made objects have been hit by meteorites with buildings the most frequent targets. Thus far, the 21st century has incurred 5 meteorite strikes, all of which have struck residential areas and, as one would expect in this day and age, all have been confirmed.

Branch notes that his 102 'hit list' may contain a number of inaccurate reports but has done his best to exclude as many doubtful entries as possible. He also notes that disproving a report can be extremely difficult in some circumstances.<sup>2</sup>



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### Appearance

Auckland Meteorite is a perfect specimen and clearly highlights all the effects of atmospheric heating and flight.

Enhanced flow lines of ablation are particularly prominent as is a thin dark fusion crust that encases the entire rock. Remarkably, tiny pale green/yellow crystals, possibly olivine, managed to survive the flight and can be seen peeping out from the top of the rock. Apart from a small chip on the back of the meteorite, which is thought to have occurred as it hit the metal roof tiles, Auckland Meteorite is a stunning specimen to say the least.

Auckland Meteorite will always be known for its amazing and rare entrance onto the world stage. Collectors will continue to vie for its ownership with Brenda and Phil Archer playing judge and jury with its fate.

New Zealanders will have another unique event to add to their history books, public awareness has increased with everyone on the lookout for their own piece of space rock and science will be all the richer for it! ★

### REFERENCES:

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2. Dr Walter Branch, Branch Meteorites. – 'Chronological Listing of Meteorites that have struck Humans, Animals and Man-made objects'
3. Meteorite 'www.branchmeteorites.com Meteorite Magazine – 'A Gift from space lands in New Zealand', August 2004, Volume 10

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