

THE CYCLONE OF 1936: THE MOST DESTRUCTIVE STORM OF THE TWENTIETH CENTURY?

1936

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In late January 1936 a weakening tropical cyclone moving towards New Zealand interacted with a cold front over the north Tasman Sea to form one of the deepest depressions ever to cross the country. The meteorological aspects of the depression were described in a report published by Barnett in 1938. He did not describe in detail the destruction caused by the storm, limiting himself to the comment "Graphic descriptions of the effects of the storm can be found in the daily press for the few days following the 2nd February."

The following article is a summary of the accounts in the newspapers, and shows that this was probably the most destructive storm to affect New Zealand during the twentieth century.

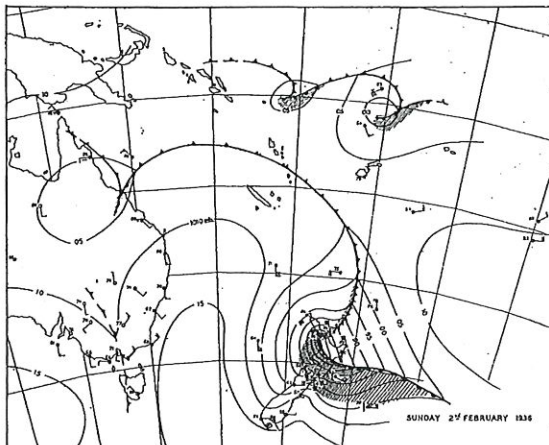
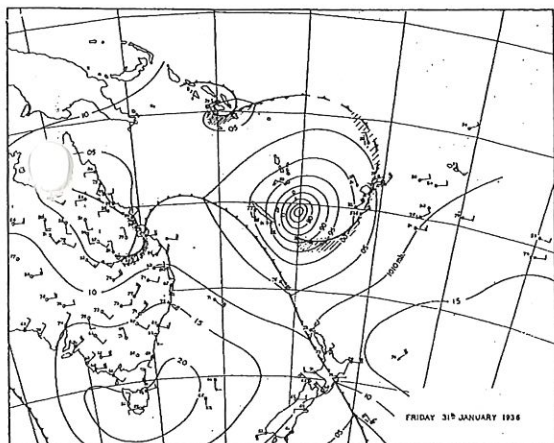
The tropical cyclone formed south of the Solomon Islands on January 28 then moved southeast to pass between New Caledonia and Vanuatu. It met up with the cold front north

of New Zealand on the 31st and intensified then crossed the North Island on the 2nd of February. It was not assigned a name, as the practice of routinely naming tropical cyclones did not begin until 1963.

FLOODING

Heavy rain fell over the entire North Island bringing most of the major rivers into flood. The Mangakahia River in Northland rose 19 metres at Titoki. Kaitia main-street was flooded a metre deep and one man was drowned there when a house was washed away as he was trying to retrieve a friend's belongings. Another man was killed near Thames in the Coromandel when his hut was carried into a flooded stream by a slip.

In Whangerei almost 300 mm of rain fell in 24 hours and floodwater ran through the business district tearing up footpaths and entering buildings. Gelignite was used in an



unsuccessful attempt to clear driftwood piled up against Victoria Bridge, which carried the road to Whangarei Heads, where several cottages were blown down.

At Waitangi the river rose two and a half metres in twenty minutes, forcing eight men sleeping on the floor of the Tung Oil Company's cookhouse to take refuge on the roof. When the structure began to move they clambered into a tree, overhanging the cookhouse, which was later carried away by the flood. A train was marooned by washouts near Kaikohe and 60 passengers had to spend the night in carriages. The railway bridge at Whakapara 25 kilometres north of Whangarei was destroyed, stopping rail traffic for days.

In one valley north of Kaukapakapa floodwater was so deep a house was inundated so that only its chimneys were visible. The public works settlement at Tangowahine was flooded, and two young women, clad in their bathing suits, waded round in the dark waking the inhabitants of the cottages. Some had no

time to dress themselves, and two had to swim to safety.

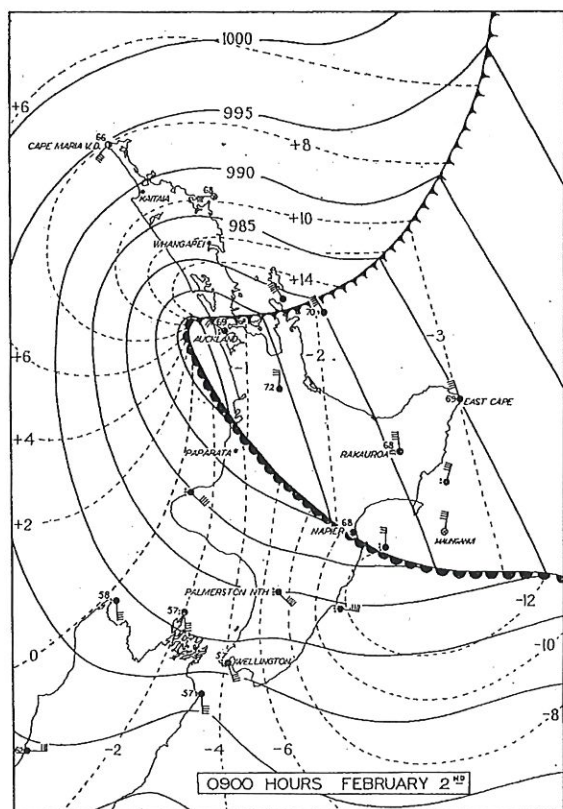
Torrential rain fell on the slopes of Mount Pirongia, between Kawhia and Te Awamutu, causing flash floods in the streams and gullies running down its flanks. A huge landslide fell across the valley floor of the Ngutunui stream holding the floodwater up like a dam. Eventually, increased pressure carried away the obstacle, and an enormous body of water swept down the riverbed with irresistible force, carrying away a large bridge and damaging 4 kilometres of road. Both banks of the river were swept clean of soil and vegetation.

One observer saw rimu and kahikatea trees borne along by the torrent rear up when their roots or branches caught against some obstacle, and topple end over end, with a crash that could be heard a long way off. When the water subsided, he picked up 40 dead trout and counted hundreds of dead eels killed by the rushing timber and large boulders carried along by the flood. Ten acres ploughed for turnips on a farm were stripped down to bare rock when the flood carried all the soil away.

Drowned sheep, cattle, pigs, and chickens, mingled with trees, were seen floating down rivers all over the North Island.

In Hawkes Bay, the Tukituki River flooded the settlement of Clive, cutting the road and rail link between Napier and Hastings and drowning 1500 sheep in stock-yards. Two railway buses were trapped when water broke through the stop banks. The passengers were carried to safety on the shoulders of rescuers immersed up to their necks in the water. The Tukituki also broke its banks at Waipukerau, drowning thousands of cattle and sheep and forcing the evacuation of 70 houses entered by water over a metre deep. The Esk River flooded to a width of more than one kilometre and began to flow down an old channel, threatening the township, until the river-mouth, which had been closed by the high sea, was reopened.

Roads and railway lines were inundated by flooding, and undermined by washouts, bridges were destroyed and slips came down in thousands all over the North Island. Near Stratford the railway line was blocked by more than a dozen slips, the biggest of which was 500 metres long and full of trees. Another slip diverted a stream so that it flowed a metre deep through a tunnel, leaving it strewn with



driftwood. A workman clearing one slip was nearly buried when another came down on top of him. Passengers on the Service Car from New Plymouth to Wanganui waded through waist deep mud to transfer to a connecting vehicle when the road was blocked by a slip.

The Wanganui River inundated thousands of acres of farmland, entered a number of houses, and carried away two spans of the Shell Oil Company's wharf. The Okehu water pipeline was cut leaving the city with only one days supply. The nearby Whangaehu River rose almost two metres in half an hour, drowning hundreds of sheep and flowing through the Whangaehu hotel. The Manawatu River rose five metres and flooded the Taonui basin, turning it into an inland sea.

In the Wairarapa, the Ruamahanga River flooded farmland, cutting off Martinborough, and the Waipoua flooded several streets in Masterton. The Waiohine River flowed over the main highway for a time, and the Rimutuka road was blocked by a large slip. The Whareama River in eastern Wairarapa flooded houses in Tinui and covered cars in the main street. At Kopuaranga, just north of Masterton, a 14 ton traction engine disappeared into a river, normally only a metre deep, and still had not been found several days later.

STORM SURGE

Storm surge occurred along the east coast of the North Island, causing extreme high tides topped by large waves. At Te Kaha, in the Bay of Plenty, a sea higher than any in living memory washed a house into the ocean and swept away eight fishing boats. The road was washed away in some places, and in others covered by heavy logs and piles of driftwood. Near East Cape, huge seas entered the estuary of the Awatere River smashing part of a cordial factory at Te Araroa. Eight whales were thrown up on the beach between Te Araroa and East Cape. Fishing launches were driven ashore at Whitianga in the Coromandel. On Waiheke Island a dingy left tied to a pohutukawa tree was found dangling like a christmas decoration after five metres of beach was washed away from under it. At Castlepoint, on the Wairarapa Coast, the sea washed away the sandhills and invaded houses a hundred metres inland. In Wellington the sea flooded the waterfront roads, and in

Marlborough the roaring of the surf on Cloudy Bay beach was plainly audible in Blenheim.

WIND DAMAGE

The wind blew in windows from Picton to Kaitia, and brought down hundreds of thousands of trees, cutting power, telephone and telegraph lines all over the North Island. Palmerston North was hardest hit. Houses lost roofs, chimneys were blown down, and dozens of plate glass windows in the business district were blown in. The grandstands of the A&P Association, the Awapuni Racecourse and the Sportsground were demolished, and a man was killed when he was blown off his roof as he tried to repair it. Hoardings, fences and brick walls were blown over. One large building housing 12 cars collapsed like a pack of cards damaging all of the vehicles. Twenty-eight large trees came down over the main power lines in one 120-metre stretch of road.

A train was derailed near Makerua just south of Palmerston North. The last two carriages and the guard's van were caught by the wind and thrown down a bank into the Makerua swamp, which fortunately was dry. Although the train had been travelling about 40km/h only five of the 30 or so people in the carriages were badly injured, requiring stitching for wounds and treatment for concussion. A number of empty railway wagons on sidings at Levin and Linton were blown over and the small railway station at Karere was destroyed. Fallen trees blocked the line between Levin and Otaki and passengers had to cut through them with axes before trains could pass.

Nearby, at Manakau, a blacksmith shop and parish hall were levelled to the ground, two large greenhouses were destroyed by falling trees, part of the roof of the dairy co-op lifted off, and cream cans were scattered 150 metres down the road.

At Longburn, the Anglican church was demolished and scattered over the road and railway line. A hall also lost its roof, as did a house, where the chimney also fell in. A horse on a nearby farm was cut in two by a flying sheet of corrugated iron. Three huts next to the railway station were blown over. One somersaulted three times with the occupant rolling about inside along with a heavy stove. His wife had just stepped outside when the hut lifted and toppled over missing her by half

a metre. She was blown into a clump of willow trees and from where she was extricated by the stationmaster. The occupant of the adjacent hut was imprisoned when it landed face down, and he had to cut his way out through the floor.

The Fielding Aero club hanger was blown away and the two planes inside destroyed. A motorist on the main road near Te Matai was chased by a large corrugated iron tank, which raced across the paddock towards him. It jumped the fence, but luckily only struck his car a glancing blow. Elsewhere in the Manawatu, barns, woolsheds, and cowsheds were destroyed, one breaking the leg of the farmer inside it.

The avenue of trees at Massey Agricultural College was blown down over the road so that the only way to get through was to make a detour the college grounds. The college authorities objected to this and closed the gates. A motorist retaliated by filing through the padlock.

Buildings were also destroyed in Taranaki. In Inglewood, the badminton hall blew down and the Anglican Church lost its roof. In New Plymouth the Frankleigh Park hall was destroyed. In Waitara a number of large buildings disintegrated, and a 25 metre steel and brick chimney was blown over, as was the Harbour Board beacon tower. In Rotorua, the historic Anglican mission church at Ohinemutu was blown down.

Shop windows in Auckland were blown in and some houses lost roofs. In Cornwall Park, hundreds of trees were snapped off or uprooted accompanied by sounds likened to cannon fire. Falling trees brought down power lines in all suburbs and also delayed trams. The Auckland Gliding Club hanger disintegrated and all the gliders were destroyed. Iron and wood was strewn over hundreds of metres and one wing was blown a kilometre away.

A hunter and a tramp died of exposure in the Tararua Ranges north of Wellington. At the height of the storm trees were being uprooted from the ridges and thrown bodily into the valleys, and the Waiopahu hut was blown into a gully. Trampers described whirlwinds in the gale twisting the crowns of trees around until all the braches splintered off. The trunks of some of these trees are still standing today, more than sixty years after they died. All of the rivers rising in the Tararua Ranges were in flood: the Hutt river breaking

its banks and covering the main road at Silverstream, and the Otaki rising to within a foot of the decking on the main highway bridge.

Among the more unusual effects of the storm was the discovery, at Taupo, of a red billed tropic bird (amokura), brought down by the gales from the Kermadec Islands, which lie about 1000 kilometres northeast of Auckland. Tropic birds are rarely seen in New Zealand. According to the ornithologist Buller, Maori in the North Cape area would systematically search the beaches for them after an easterly storm as they valued their red feathers, and traded them south for greenstone.

Local birds also suffered in the storm. The courtyard of the Friend's Hostel in Kelburn was strewn with the bodies of scores of dead sparrows killed by the wind and rain. The hostel matron nursed several dozen more birds through the storm, keeping them warm in a shoebox.

AGRICULTURAL DAMAGE

The wind wrought havoc in orchards all over the North Island, destroying a large portion of the crop. In Henderson it was impossible to walk through some orchards without standing on fallen fruit. In Wairoa apples and pears were seen flying horizontally for some distance from the trees. Crops like maize, wheat and oats were flattened from Marlborough to Northland, and haystacks blew away in many places. In Pukekohe, potato plants were sheared off at ground level. There were also cases of sheep and cattle being killed by falling trees. Floodwaters destroyed crops of peas in Marlborough, strawberries and tomatoes in Wanganui, oats in Wairarapa and kumera in Northland.

DAMAGE TO SHIPPING

In Auckland, 40 boats were sunk or driven ashore in the Waitemata Harbour and several more in the Manukau Harbour. Two boats were wrecked on Rangitoto Island and the occupants injured on the rocks as they clambered ashore. A fishing launch from New Plymouth was lost at sea and the father and son crew presumed drowned. Two coastal traders suffered damage off the North Island's West Coast. Huge seas stove in the crew's quarters on one vessel and washed a half ton

chest off the deck, while 20 sheep were killed on the deck of the other vessel and another four sheep washed overboard.

Numerous small boats were wrecked in Wellington Harbour and a coastal steamer was driven ashore near Kaiwharawhara. The only man on board was a caretaker, who was rescued by sliding down a rope sitting inside a lifebelt. Pounding waves also washed away the ground underneath the railway line near Ngahauranga, leaving half the tracks suspended in mid-air. Part of the Te Aro baths in Oriental Bay blew away and was chased across the water by the Harbour Board's launch.

Disaster was only narrowly averted when the inter-island ferry Rangatira steamed into Red Rocks five kilometres to the west of Wellington Harbour mouth in winds almost as bad as the day 32 years later when the *Wahine* sank. After twenty minutes stuck fast the ship was able to reverse off the rocks then turn and back slowly along the coast and into the harbour, taking water in through gaping holes in her bow. Her propellers were half out of the water by the time she grounded next to the Clyde Quay wharf, and her lower passenger decks were awash. Fortunately, none of the 800 passengers and crew suffered serious injury, although many were plainly terrified by their experience.

DAMAGE BILL

It is interesting to consider the cost of a similar storm's damage were one to occur again. Cyclone Bola, in 1988, has been estimated to have caused \$111 million damage to Gisborne (Salinger 1998). Bola was slower moving than the 1936 depression, and so the rainfall was greater and the flooding worse in those regions that bore the brunt of Bola. Using the rough rule of thumb that no province in 1936 suffered more than half the damage done to the Gisborne region by Bola, but allowing for the fact that the whole North Island was badly damaged in 1936, yields an estimate of roughly \$800 million damage for a repeat of the 1936 storm. This rough estimate could doubtless be improved upon by economists looking in close detail at the damage that occurred in 1936 and also considering what new expensive targets now litter the landscape. However, it makes a useful starting point for evaluating the economic impact of a similar storm in the near future.

REFERENCES

- Barnett M.A.F. The Cyclonic Storms in Northern New Zealand on 2nd February and the 26th March 1936. Department of Scientific and Industrial Research Meteorological Office Note No.22.1938
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