The 1865 Tāmaki River Bridge Panmure



PANMURE BRIDGE, AUCKLAND, NEW ZEALAND.

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Introduction

The 1865 Tāmaki River Bridge was built between 1864 and 1865 and is the earliest surviving swing span bridge in New Zealand. The bridge brought huge benefits to the people of Pakuranga, East Tāmaki and Howick by providing road access to Auckland across the Tāmaki River. The movable span, when rotated through 90 degrees provided a gap of 40 feet (12m) for vessels on the river to pass. A Punt (ferry) operated from about 1845 but as the population increased, it could not cope with the traffic across the river and there was much agitation to build a bridge.

To help defray the cost of the bridge, tolls were collected. The timber portion of the bridge was demolished in 1916 when a new concrete bridge was erected to the north, but the iron swing span, 78 feet long (23.7m) remains to this day and was conserved by Auckland Council in 2013. The Bridge is recognised by Heritage New Zealand, Category 2, with Registration No 9501.

Māori history of the site

The Tāmaki River, especially the narrow portion of the river close to Panmure is of huge significance to Māori. The Tāmaki isthmus is associated with many of the waka (canoes) that arrived in early migrations from Polynesia, including *Matawhaorua*, *Aotea*, *Mataatua*, *Tainui*, *Te Arawa*, *Takitimu* and *Tokomaru*.

Many waka, including the *Tainui* canoe, used the Tāmaki River to voyage and cross the 200 metre portage Te Tō Waka at Ōtahuhu where they entered the Manukau Harbour. This was the most frequently-used canoe portage in pre-European New Zealand. From there, waka could journey through Manukau Heads to the west coast or to the Waikato River across another portage at Waiuku.¹

The waka, *Tainui*, after landing in Bay of Plenty came to the Waitematā and up the Tāmaki River.



Map of Tāmaki

After stopping at Panmure Basin it continued to the Ōtahuhu portage and across to the Manukau before sailing to Kāwhia where it was finally interred with stones marking the bow and stern.²

The Tāmaki-Makaurau area, as the Auckland Isthmus was known to Māori, was highly prized and fought over because of its rich volcanic soils that were ideal for Polynesian agriculture. There was plentiful seafood and easy access by water between the east and west coasts.

The Tāmaki River was known to Māori as Te Wai o Taiki (the waters of Taiaki – a Tainui ancestor).

Some Ngāi Tai ancestors of the Tainui waka settled in the Tāmaki area in the 14th century when the Tainui passed through on its journey to Kāwhia. The Panmure Basin is known to Māori as Te Kai a Hiku (the feeding place of Mokoika Hikuwaru who was the guardian taniwha of the basin). On the western shores there was the sacred spring Te Waipuna a Rangiātea, named by the crew of the Tainui canoe after a spring in East Polynesia. Ngāi Tai were once part of an extensive coastal trading network to Coromandel, Aotea (Great Barrier) and Bay of Plenty.³

Ngāti Paoa occupied the Panmure area from the 1600's; they built the fortified Mokoia Pā and Mauinaina village (further north) close to the present Panmure Bridge for defence of a feared attack by Ngāpuhi.⁴ On their second voyage to New Zealand in 1820, Rev. Samuel Marsden and Rev. John Butler visited the Ngāti Paoa Chief Te Hiinaki at Mokoia Pa. Marsden's visit to Mokoia (Mogoea) on 13th and 14th August 1820 was described in his diary as follows; "It was a very populous settlement and contains the finest race of people I had seen in New Zealand, and very healthy. Their houses are superior to most I have met with. Their stores were full of potatoes containing some thousands of baskets, and they had some very fine hogs. The soil is uncommonly rich and easily cultivated. The number of women and children was very great, but most of the fighting men were gone on a war expedition to the south. -----They have no grain of any kind - sweet and common potatoes with turnips and cabbages constitute their principal food."⁵

John Butler described the area when viewed with Chief Hiinaki (Enackee) from the top of Maungarei (Mt Wellington).

"The prospect from the summit is grand and nobly pleasing. I observed twenty villages in the valley below, and, with a single glance, beheld the largest portion of cultivated land I had ever met with in one place in New Zealand."⁶



Looking towards Mokoia Pa Auckland War Memorial Museum – Tāmaki Paenga Hira; C2265

The Ferry Service

A ferry service was established by Hemi Pepene (James Fairburn) from 1845 to about 1850, initially using his canoe and then a punt he built.

Hemi was the adopted son of Missionary William Fairburn. Hemi, had trained as a carpenter at Paihia Mission Station. When he moved to Tāmaki, Hemi established a farm on the Pakuranga side of the river with several Raupo cottages. He built his own ferry boat, had a house cow, pigs, hens, and a large area under cultivation where he grew wheat, oats and barley. He had four Māori labourers, and even a European servant which was unusual for that time. He was a very successful farmer. He owned a small coastal vessel of 100 tons and sold his produce in Sydney.



Pakuranga Sketch of Hemi Pepene's home and punt about 1850 Journal of James Walton, Alexander Turnbull Library, coloured by Alan La Roche

The Rev Vicesimus Lush described him as a very generous man giving an enormous Christmas feast for all his relations.⁷

A Government ferry service was started around 1850 but tidal rips were a challenge for the rower of the punt. Horses and sheep had to swim across. In February 1851, the Daily Southern Cross described the service *"The ferry at Panmure -- is by means of a punt -- is a clumsy unwieldy machine -- frequently, most frivolously and vexatiously delayed in its labouring passages."*⁸

By 1852 repairs were needed to the punt and additional wings were constructed at the landing places.^{9.} A new punt was built in December 1853 which was operated with a 5/8 inch (16mm) iron chain, 660 feet (201m) long, but it was slow and cumbersome.¹⁰

In August 1854 the punt had to be taken out of service for repairs and passengers were conveyed in a small boat.¹¹ By May 1856 tenders were called to build another new punt.¹²

The punts were free from 6 am until sunset, but charges applied during the night. The ferryman was given a raupo cottage, later replaced by a wooden cottage near the stone landing place on the Panmure side. This was close to the track up to Bridge Street (originally called Hill St) and Queens Road which led to Panmure.¹³

The punt leaked and was constantly laid up for repairs and out of service for a week or more. Crossings of the river often took over an hour and Howick horse buses had to be unhitched for the horses to swim across the river.

A letter to the Editor of Southern Cross newspaper complains that after the punt had been out of service for a week in July 1861, it subsequently sank in the stream and the new contractor refused to accept it resulting in more delays.¹⁴ Many people demanded a bridge.



Ngaruawahia Punt in 1875 - possibly similar to the Panmure Punt -Sir George Grey Special Collections, Auckland Libraries; 4-3794

The daily survey on the Panmure Punt from 20 January to 2 February 1862 counted 440 horses, 176 Carts and waggons, 38 Great Cattle, 1462 sheep, 9 pigs, 2 goats and 910 foot passengers.¹³

In the 1850s the Tāmaki River was considered to be one of the busiest waterways in New Zealand.

The cutter "*Thetis*" in 1848 was sailing three times a week to Panmure and Ōtahuhu¹⁵ and on 20th January 1852 the paddle steamer "*Governor Wynyard*", the first steamer built in New Zealand, started regular trips on the Tāmaki River.¹⁶ According to the Daily Southern Cross, 20th January 1865 when the construction of the new bridge had commenced,

"-- a wooden bridge to supersede the present tedious and inconvenient ferry. And perhaps no public work in the province of Auckland is more required than this; and none when completed will confer a greater benefit upon a large section of the rural settlers. At present the very important district of East Tāmaki is practically cut off from direct intercourse with Auckland by the Tāmaki River, which can only be crossed at Panmure by the old-fashioned and all but useless punt or by making a circuit of several miles and crossing the river by the permanent bridge on the Great South Road beyond Ōtahuhu."¹⁷

A Bridge - but who will pay for it?

As early as 1849, two years after Howick was settled, the Catholic Father Antoine Marie Guerin called for a bridge over the Tāmaki suggesting it should be called the "Union Bridge" to link the two villages of Howick and Panmure.¹⁸

In December 1853 it was reported to the Auckland Provincial Council that:

"a new punt with warps and hauling gear would cost from £600 to £700; whilst a suspension bridge upon the authority of a practical engineer was reported as being capable of being thrown across for about £1,000".¹⁹

In a letter to the Editor of the Southern Cross newspaper of 26 September 1854, William Atkins, a Howick fencible, criticised the large sum of money spent on a new road from Panmure to Auckland as follows:

*"If the sum required to open this useless road was expended on the road from Panmure to Howick or in building a bridge over the Tāmaki River it would be a general benefit to the Province and to the Pensioners".*²⁰

In December 1855 the residents of Howick petitioned for a bridge across the Tāmaki.²¹ Following this petition in April 1856, Mr Joe Brennan, Auckland Provincial Council member for Panmure made a request to the Superintendent

"--- to place a sufficient sum of money to enable him to throw a bridge across the Tāmaki River at the place where the punt now crosses near the village of Panmure".²²

A public meeting was held at The Green in Howick on 9th December 1857 *"to take into consideration the important subject of getting a bridge erected across the Tāmaki at Panmure.*

A subscription will be required and the Provincial Government petitioned to give at least an equal sum to the one raised. Proprietors and residents in the vicinity and districts of Howick and Panmure were particularly requested to attend".²³

In March 1858, Auckland Provincial Council member Mr Wilson moved to have £4,000 put on the estimates for erecting a bridge, but this was turned down on the grounds that there was no firm price available.²⁴

However on July 15th 1861 the Provincial Council Superintendent J Williamson advertised for tenders by Wednesday 24th July *"—for the erection of a Bridge on the Road between the Panmure Ferry and Howick--"*.²⁵

However the Southern Cross newspaper of 18th February 1862 reported:

"the Council went into committee on Message 60 referring to the erection of a bridge over the Tāmaki River at Panmure, and after a prolonged debate it was resolved to request the Superintendent to offer a prize of £50 for the best plan and estimate for a bridge at the point named which would not interfere with the navigation".²⁶ On 7th April 1862, after an advertisement in February for an *"Iron Bridge at Panmure"*,²⁷ James Stewart, an Auckland consulting civil engineer and engineer to Auckland City Board of Works, submitted a design for a suspension bridge.



James Stewart "Design for a Suspension Bridge at Panmure" Sir George Grey Special Collections Auckland Libraries; 5552i On February 20 1863, the Provincial Council Superintendent Robert Graham reported on the raising of a £500,000 loan for provincial works.

"It is proposed to provide out of the Loan an advance towards the erection of a bridge over the Tāmaki River near Panmure, the want of which has so long been felt. The Superintendent looks on advances to a work of this character as legitimate, as it would enable the settlers to construct a bridge suitable to the wants and needs of so important a district, and it would confer advantages impossible to overrate. A small charge by way of a rate or toll would soon pay both interest and sinking fund."²⁸

A public meeting was arranged for June 1863 to urge the Government to pass a special Act to enable funding for the bridge.²⁹ There was still debate about what sort of bridge should be built, an expensive iron suspension bridge or something cheaper.

In October 1863 The Auckland Provincial Council Panmure Bridge Committee heard evidence from residents about the need for a bridge and how it should be paid for.

All were in favour of a bridge and the Superintendent advised that gentlemen connected with the Tāmaki were prepared to give a satisfactory guarantee to pay the interest on the sinking fund until tolls are imposed. He noted that the punt would not last more than 18 months.³⁰ Subsequently 14 land owners signed up as guarantors.³¹

The Tāmaki Bridge Act was passed in March 1864. "An Act to enable the Superintendent of the Province of Auckland to expend a sum not exceeding £15,000 out of money raised under the provisions of the Auckland Loan Act 1863 for the purpose of constructing a bridge over the Tāmaki at Panmure".³²

Tenders for erecting a bridge over the Tāmaki were advertised on 7th April 1864.³³ McNeil and Wilson of Victoria, Australia was the successful tenderer with a price of £11,548-12-6 to the design of William Rickford Collett.³⁴ Collett was the Chief Superintendent of Roads and Bridges for New Zealand. He was awarded the £50 prize for his design, but James Stewart got nothing for his efforts!



Tamaki River Bridge -Sir George Grey Special Collections Auckland Libraries; AWNS-19110727-3-1

William Weaver, Engineer in Chief to Auckland Provincial Council was responsible for approving the design and for supervision of the construction of the bridge. Weaver made a model of the Panmure Bridge which was exhibited at the New Zealand Industrial Exhibition in Dunedin in 1865.³⁵ The Panmure Bridge's swing span mechanism was relatively new in New Zealand at that time, and unusual because it was to one side of the river rather than in the centre as was normally the case with other swing span bridges. The Canterbury Provincial Government had erected swing span bridges at Kaiapoi in 1863 and at Heathcote in 1864.



A poll tax was suggested to pay for the bridge, but meetings of local residents at Panmure in 1868 vehemently opposed such a move.³⁶ Tolls were already used for Auckland's main roads.



Family group in sailboat - Sir George Grey Special Collections Auckland Libraries; -1031-P361

Auckland Provincial Council published toll rates for the

Tamaki River Bridge on 30 November 1865.

PUBLIC NOTIFICATION.

TN pursuance of the power conferred on me by the "Tamaki Bridge Act, 1864," J hereby notify that on and after the 5th day of January, 1866, Tolls shall be paid at the Toll Gate at the Tamaki Bridge, near Panmure after the rates following viz :----£ s. d. For every single or Saddle -

For every	single	e or b	saddle	3 -			
Horse	-	-	-	-	0	0	6
For every drawn	Carris by one	age of Hore	r Veb 1e -	icle -	0	1	0
For every drawn	Carri by two	age or	r Veh zes	icle -	0	1	6
For every drawn	Carri by n	age o lore	r Vel than	nicle two			
Horses		•	-	-	0	2	0
For ever Convey senge For ever Bullock to b	y Pu ance ers for y Dr c, ever e cha orse.	blic carry hire ay d y two arged	Van ing rawn Bull as	or pas- by ocks one	0	2	0
For all gr per hea	reat au d - She	nd sm -		attle -	0	0	3
ner hes	, Bne	ср, а -	-	- Jais,	0	0	2
For every	foot	Passer	nger	-	0	0	2
		I For	IUGH the S	CAI	LE	тох ende	ent.
				•			

Superintendent's Office, November 30th, 1865.

Auckland Provincial Council Toll Public Notification

A toll keeper's wooden three roomed cottage was built on the Pakuranga side. Sometimes, if the toll keeper was asleep when the horse bus crept over quietly, the driver could avoid paying the two shilling toll.

There continued to be agitation from the public to reduce tolls.



The Toll Keepers House-Auckland War Memorial Museum – Tāmaki Paenga Hira; C6118

In November 1870 a deputation called on the Provincial Council Superintendent to remove tolls for foot passengers and clergymen. The Council agreed to this request.³⁷ In December 1870 a deputation called for tolls to be equalised with similar road tolls at Newmarket and other similar tolls. The Superintendent agreed to this request from 1 January 1871. However it was not until 1884 that tolls on the Panmure Bridge were abolished by the Government along with tolls on other Auckland roads.³⁸

Construction of the Tāmaki River Bridge

Work on the Tāmaki River Bridge started in October 1864. Arrangements had been made to procure totara piles from Mahurangi. When pile driving commenced it was found that, due to the nature of the river bed, piles needed to be driven up to 18 feet deep. The length of piles had to be much greater. Longer totara piles were found at Ngunguru near Whangarei.

The contractors engaged a steamer to bring the longer piles to the Tāmaki as a raft. Some of the 120 piles used were up to 65 feet (19m) in length, and many exceeded 60 feet (18.3m). They were the longest piles that had ever been used in the province.³⁹



Tamaki River Bridge 1916 – Sir George Grey Special Collections Auckland Libraries; 4-1620

The timber section of the bridge comprised eighteen spans each of 25 feet(7.6m) in length with landward ends of 18 feet(5.5m). At each pier there were six piles, four driven vertically, with one on each side driven at an angle of 1 in 5.

All piles in the salt water had to be sheathed in Muntz metal (a brass alloy of about 60% copper and 40% zinc) to protect them against the Toredo worm (or ship worm). Piles on Mangere Bridge and Queen Street Wharf suffered badly and had to be regularly replaced due to Toredo worm damage. The heart kauri deck was supported on longitudinal girders also of heart kauri, 18 inches (457mm) deep by 12 inch (305mm) wide all securely fastened to the cross beams and piles.⁴¹

During the pile driving some of the muntz metal sheathing on the piles became loosened. To prevent attack by Toredo worm it was required that all sheathing should be inspected by a diver and made good as necessary. With the assistance of the New Zealand Insurance Company, the contractor procured a Heinke's Patent Diving Apparatus. It had been used on London's new Westminster Bridge that was being constructed at the time. An experienced diver with two comrades from Cape Colony (South Africa) were hired for the work.³⁹

According to the Southern Cross Newspaper 20 January 1865,



A Diver- Getty Images

"The diver dresses himself in the diving clothes, gets on the enormous brass helmet and leaden soled-shoes after which he is further weighted on the back and chest with blocks of lead to keep him under water, the buoyancy of the air pumped down to him being so great that it is with difficulty he sinks. The gutta percha tube attached to the air pump on the works above is then screwed into his helmet and wound around his body; the mouth piece is then screwed on, and the man with a life line attached to his body, and his working tools in his trousers' pockets (for he also wears waterproof overalls), descends the ladder from the lower stage and disappears in the water. The man at the air pump has, meanwhile been industriously grinding at the winch handle of the machine; and another man with the lifeline in his hand, stands on the lower stage and gently pulls it as if engaged fishing; whist the diver walks along the bed of the river from the ladder to the pile at which he wants to work, his course on the bottom being traced by the large air bubbles which come up to the surface.

The air escapes through a row of valves fastened along the chest. ---The Engineer in Chief will take steps to have an inspection made of the work and report as to its condition."³⁹

The Southern Cross newspaper also reported a story by Mr McNeil, the contractor.

"A few days since a Māori, who came to sell fish, was standing on the river bank looking at the diver's mate working the lifeline and telegraphing the diver to come up. The Māori watched intently, thinking he was fishing, but when he caught sight of the head and shoulders of the diver emerging from the water, he did not wait for the rest of his body to appear, but took to his heels at once, and did not look back until he had got well out of harm's way on the crest of the hill overlooking the Tāmaki.



Mr Henry McNeil, Bridge Builder The Book of Panmure 1848-1948

He did not remain long there, however, for the appearance of the diver even at this

distance was sufficiently alarming. And indeed, to a person who had neither seen nor heard of a diving apparatus, the un-looked for advent of a man dressed in Heinke's patent diving dress with ropes attached would be enough to make him take to his heels."³⁹ In order to build the eastern abutment, piles had to be driven to form a coffer dam using three rows of piles that were lined with planks before being filled with puddled clay. After pumping out, the abutment could be built in the dry as excavation down to 13 feet below the riverbed was necessary.

William Weaver, the engineer, reported to the Provincial Council in January 1866 "The ground at the end of the bridge which is very deceptive in appearance – changing from clay to rock in the space of a very few yards here proved to be as hard blue clay covered with a deposit of several feet of silt. It was of course necessary to remove this and prepare a proper concrete foundation as the silt had to be taken out to a depth of 13 feet below the bed of the river, the contactor experienced great difficulty in making the coffer dam secure."⁴⁰

Although the contractors had been advised that they could obtain stones of sufficient size in the neighbourhood and they had built a punt specially, finally no suitable stone could be found.



Each stone was required to be six cubic feet in size. Local quarries at Panmure and three miles upstream on the river were tested, but all were rejected by William Weaver because of dry cracks. It then became necessary to import suitable blocks from Melbourne.

The required dimensions and shape of each stone was sent to the Victoria quarry where each was dressed to the correct size. It was agreed that the block size could be increased to nine cubic feet $(0.255m^3)$ and weighing 1.5 to 2 tons.

A travelling crane was installed to pick up and lay each stone in its correct place.³⁹ These blocks are still in perfect condition.

The iron swing span weighing over 40 tons was manufactured by P N Russell and Co of Sydney at a cost of approximately £3,000.

The longitudinal I beams are made up from ¼ inch(6.3mm) iron plate with 12 inch(300mm) wide top and bottom flanges fixed to 6 inch(150mm) by 3 inch(76mm) angle irons on the bottom flange and 3inch(76mm) by 3 inch(76mm) angles on the top flange riveted on all sides by 7/8 inch(20mm) rivets at 3³/₄ inch(85mm) centres.

The beams taper along their length from 30 inch(762mm) depth at the turning rail.

The whole span rotated on a circular rail from a central pivot point. When swivelled through 90 degrees, the 78 foot(23.8m) span provided a clear opening of 40 feet(12.2m) for vessels to pass.

The swing span was described in the Daily Southern Cross of 20 January 1865 as "The swivel bridge, which will be found to be one of the most perfect mechanical contrivances of the kind in the Southern Hemisphere."³⁹

The circular rail on which the swing span rotated and the hand winch used to move the span are clearly visible in the remaining structure. The ironwork was fully assembled in Sydney before being shipped to Auckland. At the landward end of the swing span, 6 tons of scrap iron was used as a counterweight.



Eastern end of bridge and swing span Courtesy Dr David Simmons Māori Auckland P 63 Bush Press Auckland 1987

The original Tāmaki River Bridge was 640 feet (195 m) long with clear road width of 20 feet (6m) surmounted by a substantial handrail. The bridge deck was 10 feet (3m) above the river at high tide and 25 feet (7.6m) at low tide.

The final cost was £15,189-14-7 plus £938-18-8 for Loan interest and sinking fund. The cost of approach roads was £1,835-5-5. With advice from the Port Master, Captain Burgess, Dolphins were put down in the river to assist the passage of vessels.

Official Opening

The official opening ceremony took place on 20 October 1865 by Robert Graham, Superintendent of the Auckland Provincial Council when he placed the last corner stone. This was at the southwest corner of the abutment, lowered into position by the travelling crane.

According to the Southern Cross newspaper 23 October 1865 "His Honour the Superintendent addressed the assemblage as follows 'I lay this corner stone in the hope that it long may remain a portion of the permanent works of this province – a work which in its completion will be a credit to this province, and which is so much desired by the surrounding districts. It is very gratifying to me, and it



Robert Graham Sir George Grey Special Collections Auckland Libraries; 7-A9532

must be gratifying to you all, to see a structure of this kind performed by the contractors in a thoroughly business-like manner. It is very gratifying not only to myself personally, but also to the Engineer in Chief who has superintended the structure, to the contractors who have placed on the ground such noble material, and to the workmen who have fitted that material to the position in which you now behold it.'"

The official opening was followed by a substantial luncheon for the 100 invited guests provided by Mr Cunningham of the Newmarket Hotel. There were many toasts and long-winded speeches in a large marquee beside the old redoubt (near St Patricks Catholic Church).

A dance followed which included the fashionable country reel "Sir Roger de Coverley" dance went well into the evening.⁴¹

Abutment Roads

The first use of the bridge by public vehicles was for the Boxing Day races on 26 December 1865. It was advertised they would be held at Howick (Bucklands Beach) close to Mr Buckland's wharf at the entrance to the Tāmaki. Aucklander's flocked in their gigs and waggons to see this amazing structure.

The Southern Cross newspaper of 23 December 1865 stated:

"---there is a good driving road from Auckland. The new bridge across the Tāmaki as was announced yesterday, will be made passable for vehicles on the occasion. This will ensure a pleasant excursion, should the weather prove favourable, as there is no more attractive drive in vicinity of Auckland than that to the proposed racecourse by St John's College and Panmure. Indeed the new bridge is in itself a sufficient attraction. It is by far the most extensive work of the kind in New Zealand - we may say in the Southern colonies being identical in span with the Britannia Tubular Bridge. Mr Hardington proposes to run omnibuses from the City to the race ground --".⁴²

However the abutment roads were not finally completed until March 1866, being built using spades, picks and barrows. The gradient of 60 metres up to Bridge Street was 1 in 14 gradient, the same as Wakefield Street in Auckland.

Crawford's horse bus driver would ask his passengers "all out and push" up to Hill Street through the soft volcanic ash banks.

Prior to the completion of the approach roads on 23rd January 1866, the driver of the Howick Horse Bus, Mr Thomas Beake, aged 49, one of the oldest omnibus drivers in New Zealand, was thrown to the ground when the horses shied on crossing the bridge. He broke three ribs in the fall and died 14 days later.⁴³ Horses tend to be frightened by the sound of their hooves on wooden decking.

Operation of the swing span

The swinging span mounted on a circular rail was turned using a hand operated winch. Sometimes it took hours to open or close, annoying shippers with loads of chaff, oats or wheat, granite kerb stones from East Tāmaki lava flows. Crawford's horse buses going to or from Howick to Auckland were also delayed. Joe Wade with loads of field tiles and bricks blew loudly through his cow horn to warn the toll keeper to open the swing span. Most cutters, scows and trading vessels were sailing ships that needed great skill to negotiate the small opening with difficult tidal rips. Note the picture of the scow passing through the bridge shows it is anchored. Probably the tide had changed before it managed to get through!

A letter to the Editor of the Southern Cross newspaper in August 1866 complained that it was not unusual for four or five cargo boats with 60 to 100 tons of cargo lying all night waiting for the bridge keeper to open the bridge. Then finally when the bridge opened the tide could be against them.⁴⁴

> Scow passing through Panmure Bridge Sir George Grey Special Collections Auckland Libraries AWNS19110928-p014



In 1887 the Bridge Caretaker was not paid for 3 months and refused to open the bridge for shipping until the arrears in his salary were paid. Meanwhile ships were tied up either side of the bridge unable to move through.

The Pakuranga Road Board, the Government and Auckland Harbour Board disclaimed responsibility.⁴⁵ Later in the year the caretaker still receiving no salary from the Government, retained the handles to the winch and would not allow others to use them.

Crawford's Horse bus on its way to Auckland along with several other vehicles was stopped for two hours on Monday 3rd October 1887. Finally with a block and tackle they managed to close the bridge.⁴⁶



Crawford's Horse Bus outside Panmure Hotel - The Book of Panmure 1848- 1948

Depression 1865

When the capital of New Zealand moved to Wellington and the military left Auckland after the Waikato War, many Howick farmers whose butter price went from 1/6 per pound to 1 penny a pound moved away. Income from tolls fell from the budget of £500 in 1866 to £103.

Joe Roberts lived where St Kentigerns College is today. When he was unable to get his vessels further up the river, he used to moor them against the bridge to load wheat and oats. This blocked all other traffic on the bridge which put him on the wrong side of the law. He went to court, but being very well known, the case was dismissed.

Important happenings on the bridge

- In 1867 on 18th June about 800 students attending Howick and Panmure schools met at the bridge before walking to the Catholic Hall for its opening and a grand treat of refreshments.⁴⁷
- Sir George Grey in 1867 crossed the bridge was welcomed by the Howick Yeomanry Cavalry.
- His Royal Highness Prince Alfred, Duke of Edinburgh, the 24 year old second son of Queen Victoria and Prince Albert came to New Zealand in 1869 after the wars with Māori. He arrived in Auckland on 11 May when elaborate preparations had been made. A bonfire was to be lit on Mt Wellington on the night of his arrival. Triumphal arches decorated with ferns and Nikau fronds were erected in Panmure and at the Tāmaki River Bridge. The Panmure and Howick Cavalry were to be in attendance to escort him to Howick.⁴⁸ A Citizen's Ball was held in honour of the Prince on the evening of 13 May under the superintendence of Major Charles Heaphy. Next day following the ball, the Prince was pass through Panmure and cross the Panmure bridge to shoot pheasants at the MacLean property.

But all this had to be postponed while his nose repaired being punched by an irate husband after flirtation with man's wife at the official ball.⁴⁹



HRH Prince Alfred Duke of Edinburgh Recollections of Early New Zealand 1925 by H E Morton

• The Duke of Edinburgh returned in 1870 and brought an elephant called "Tom" 6 to 7 feet high as a gift from the people of Ceylon, crossed the bridge and left it outside the Methodist Church in Pakuranga Road while he had lunch at Butley farm to shoot pheasants.

- In 1892 the great Māori leader Te Kooti Te Turuki rode over the bridge on his horse.
- The Governor Lord and Countess Ranfurly regularly crossed the bridge en route to the Pakuranga Hunt meets. Sometimes the hunt gathered at the bridge to start their hunt.
- The first motor bus in Auckland or "horseless carriage" as motor buses at that time were called, was the Howick Bus Company's "Pioneer" which used the bridge from 1904.
- The bridge featured in military practices and scenes including the Russian scare of 1885.
- Lord Kitchener visited in 1910.
- During WW1 25 men of the Auckland Mounted Rifle Volunteers with two officers with their horses and arms were stationed in the old Panmure Stockade guarding the bridge against possible German invasion.



Picture of Howick Motor Bus Co Ltd. - Sir George Grey Special Collections Auckland Libraries; 7-A220

Maintenance of the Bridge

In the 1880s Depression, local boards argued over who was to pay for repairs. On 13 June 1895 local body representatives of the Road Boards of Pakuranga, Howick, Turanga, Paparoa, Panmure, West Tāmaki, East Tāmaki, and Mt Wellington met to discuss the maintenance of the bridge. Having inspected the bridge, it was evident that a large outlay was necessary to make the bridge safe for traffic passing over it. Members of Parliament Sir Maurice O'Rorke and Major Harris were requested to ask the Government to send their engineer to inspect the bridge and to report on the cost of repair. The MPs promised to assist the Roads Boards get Government assistance.⁵⁰

The bridge was deteriorating and kauri decking was tarred and sanded in 1900. The swing span became difficult to open or close. Speed on the bridge was limited to walking pace in 1898. Riding of bicycles or fishing off the bridge was outlawed in 1903.⁵¹

On 31 March 1909, local body representatives held a conference to consider the best means of getting the bridge repaired. Again those present called on their Members of Parliament to request an engineer to examine the bridge and give an estimate of repairing it or erecting a new bridge.⁵²

New Bridge needed

By 1913 it was obvious that a new bridge would be required. Local bodies present decided that the new bridge should be a permanent structure in reinforced concrete. Mr R F Moore designer of the recently completed Grafton Bridge submitted a design which he estimated to cost £15,000.

The new bridge would be 520 feet (158.5m) in length and 30 feet (9.21m) wide. Motor vehicles were displacing horses and a wider bridge was desirable. Mr Moore offered to make the bridge 50 feet (15.2m) wide if this was desired.⁵³

But then the arguments about who would pay the estimated cost of £15,000 started. It was proposed that Pakuranga Road Board would pay 18.75%, Howick 9%, Paparoa 6.75%, Turanga 4.5%, Maraetai 2.25%, East Tāmaki 3%, Panmure 12%, West Tāmaki 6.75%, Mt Wellington 6%, Ellerslie 6%, Auckland City 10%, Remuera 7.5% and One Tree Hill 7.5%.

With the exception of Pakuranga, Paparoa and Turanga all the local bodies objected to the proposed allocations. Mr G Wilkinson from Ellerslie said local bodies should not be called upon to pay for the bridge at all. The meeting resolved that a new bridge was necessary and that a Commissioner should be appointed to enquire into the matter.⁵⁴

On 6th February Commissioner Mr W S Short, Under-Secretary for Public Works heard the arguments. Manukau County Council offered £6,637-10-0 and the Government £2,000 but the County would need to show that the bridge would be of benefit to the whole or a portion of the inhabitants of the districts named. Eventually Manukau County Council contributed about 75% of the £16,000 final cost and the Government £2,000. Auckland City paid 8%, Panmure 7%, Mt Wellington 5% and Ellerslie 5%.⁵⁵



The new "Concrete Bridge", the toll keeper's house beside the start of the old bridge, c 1916 Sir George Grey Special Collections Auckland Libraries; 4-8641

Finally on 14th August 1916 the new concrete bridge was formally opened by the Prime Minister the Right Hon. William Massey. After praising the County Council on its initiative, and referring to the other concrete bridges at Mangere and two at Karaka, he remarked on the prosperity of the district and apologised that because of the war, construction of the railway had had to be delayed.

Finally he cut the ribbon and drove a heavy traction engine across the new bridge to prove the ability of the structure to take heavy loads.⁵⁶



Opening of the second bridge, the "Concrete Bridge" with Traction Engines; the leading tractor is being driven by the Prime Minister, William Massey. Sir George Grey Special Collections Auckland Libraries; 7-A5968

However by 1930 serious faults in the new bridge were reported when a large crack across the full width of the bridge at the southern end was discovered. The County engineer Mr L E Utting said the crack was caused by sinking of the first pier at the Pakuranga end. He also reported that reinforcement was very badly placed with too little concrete covering and the shingle used caused very porous concrete causing the steel to rust badly.

It was pointed out that there were similar problems with other concrete bridges at Mangere, and Karaka constructed at the same time as the Tāmaki Bridge.

The Council decided to immediately put a load limit of six tons and a speed limit ten miles per hour on the bridge. ⁵⁷ This bridge was demolished in 1959 after the present bridge was opened.



The second Panmure Bridge – "the Concrete Bridge" Picture from the London News Sir George Grey Special Collections Auckland Libraries; 4-8462



The second Panmure Bridge – "the Concrete Bridge" in 1927 Sir George Grey Special Collections Auckland Libraries; 4-5866



The concrete Panmure Bridge 1927 - and the remnant of the old first bridge Sir George Grey Special Collections Auckland Libraries; 4-5867



Above: Demolishing the second bridge in 1959 -Sir George Grey Special Collections Auckland Libraries; 1031-P357

Below: The remains of the first bridge with the 1916 "Concrete bridge" in the background Auckland War Memorial Museum – Tāmaki Paenga Hira; C9348F



Restoration of Heritage

We are grateful for Len Brown's support when he was Mayor of Manukau City Council. After a request from IPENZ Engineering Heritage Committee in 2008 he commissioned a "Condition Report" by Matthews and Matthews which was completed in 2009.

This was followed by a Structural Engineering Assessment by Frame Group in May 2010. Although meetings with Manukau City officials were held, the change to Auckland Council in November 2010 delayed further action.

After further requests in 2011, the Mayor *"instructed his senior officers to look into concerns as a matter of priority"*.

Finally in July 2012 with help from Sandra Coney we were advised that \$100,000 has been set aside for the preservation work on the bridge. In March 2013 Access Construction led by Dan Bustard commenced the preservation work.



The concrete bridge ready for demolition with the new 1959 bridge beyond Whites Aviation aerial photo -Alexander Turnbull Library; WA-58472-G

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Back Cover picture – Auckland Museum B2149

