

A Forder lecturer's diary

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1 The background

The Forder Lectureship was established in 1985 following a bequest to the London Mathematical Society from the late Professor Henry George Forder (Professor of Mathematics at the University of Auckland 1934-55). Under the terms of this Lectureship, every two years an eminent mathematician in the United Kingdom is selected (by the London Mathematical Society Council in consultation with the NZ Mathematical Society Council) to tour New Zealand for a period of three to four weeks and to give lectures in the six NZ university towns.



I am in good company. The previous Forder lecturers were:

1987: Christopher Zeeman

1989: Michael Atiyah

1991: Peter Whittle

1993: Roger Penrose

1995: Elmer Rees

1997: Ian Stewart

1999: Michael Berry

2001: Tom Körner

2003: Caroline Series

2005: Martin Bridson

I didn't find this list anywhere. I Googled "Forder lecturer" and found various references, on individuals' homepages or committee minutes, which finally

allowed me to piece together the complete list. Also the factual information about the Forder lectureship was in some old NZMS minutes.

According to Stephen Huggett, the money from the original bequest has run out and the LMS will have to decide whether to use its own resources to continue the scheme. This doesn't affect my trip, though.

I sent Gaven Martin (the NZMS president) a list of titles and abstracts of seven talks, which got expanded to nine in March. The titles were:

1. Sudoku, mathematics and statistics
2. The random graph
3. Oligomorphic permutation groups
4. Orbit counting for colourings and flows
5. Asymptotics of incidence matrices and 2-covers
6. Combinatorics of permutations
7. Isometries of the Urysohn space
8. Cores, hulls, and synchronization
9. Scenes from mathematical life

I am on sabbatical for the calendar year 2008. This should mean that I am rather less busy than usual, but in fact my time seems to be filled up. Apart from this trip, I am spending the first six months at the [Isaac Newton Institute](#) in Cambridge, directing a programme on *Combinatorics and Statistical Mechanics*. The Institute staff are amazingly competent, and remove most of the administrative burden from us, but there is still a certain amount to do. Also, of course, we are there to make mathematical progress, and there has been quite a bit of this! At the same time I am a visiting fellow at [Gonville & Caius College](#); my only duty there is to give three or four lectures to the mathematics students at the college. This gave me the opportunity to rehearse some things that will be in my Forder lectures, especially the last title above. (The eighth came about as the result of a little mathematical adventure in January.)

The initial arrangements were a little bit haphazard. I booked flights to and from Auckland and picked up a few clues as to my movements in between. By mid-March I had a schedule: Palmerston North (a few days to get over the jet lag), Otago, Canterbury, Wellington, Palmerston North again, Waikato and Auckland, a few days in each and a free few days somewhere towards the end.

Rosemary will come with me. She had an operation in January and the post-operative treatment finished at Easter. The intention was that she would have a nice restful holiday – but of course, when the New Zealand statisticians heard she was coming, many of them wanted her to visit, and she will be almost as busy

as I. (The Forder deal allows either an upgraded plane ticket or an accompanying person.)

I had to be very careful that the travel agent sent us via Hong Kong and not LA (after the experience of my last trip to New Zealand, when the Americans treated the plane rather like a cattle truck). After the initial booking, Eamonn O'Brien invited me to stay a few extra days in Auckland; the travel agent nearly managed to send us back via LA at this point!

At Easter, we bought maps and a guidebook and started thinking about the trip, and I prepared files for the public lectures. It all started to seem more real. After some appalling weather in mid-March including heavy snow on Easter day (which led to the appearance of a white Easter bunny on the Trinity backs), the weather started improving on the last weekend in March, just before we went. The blackthorn came into blossom in a great hurry, the sun made sporadic appearances, and it finally felt that spring was on the way (but not for us – or at least not yet).



Just before we were to leave, Eamonn asked whether I would be prepared to add a third talk in Auckland (a public lecture on Sudoku), and could I send him an abstract, photo, and CV. I collated all the information so far into a “schedule” file, and printed out summary sheets of the two public lectures.

2 The journey out

The flight was in the evening of Tuesday 1 April, so neither of us showed our face at work during the day. (I was a bit tempted; having found how to compute Galois group in GAP, I calculated that the “interesting factor” of the chromatic polynomials of $K_{2,n}$ are symmetric groups for $n \leq 16$, and had half a mind to circulate this before leaving.)

We set off for a leisurely trip to the airport, but both trains came promptly. In the District Line carriage, there were no advertisements, their place taken by an official-looking notice from Transport for London explaining that, as part of the ten billion pound upgrade, advertisements are being removed from tube trains, and hoping that this would improve our travelling experience. An April Fools joke, we wondered, or possibly a subtle piece of election campaigning by Boris, persuading us that Ken wastes our money on such irrelevancies?

At the check-in desk, some problems with technology: my passport wouldn't scan, the printer wouldn't work, and then the girl gave us seats five rows apart by mistake. But finally all was done, we were through security and passport check, a snack at a rather crowded O'Neill's, and then off to the departure gate with still

more than an hour to spare.

We left promptly. After dinner, I watched about half a movie (“I’m not there”, from their self-selection system), then settled down to sleep, and managed a few hours’ fitful doze. Then a glance out the window showed the approaching dawn, with a planet (probably Venus) and the last waning moon riding just above a band of clouds. A bit later the whole side of the plane was bathed in brilliant sunshine. The cabin attendant wanted to keep the windows shut, like the drapes over a parrot’s cage, but by stooping down I managed to keep my eye to the window and watched an extraordinary landscape passing below: geometric fields, square, round, or a Young diagram with a corner cut off by a long straight road; winding rivers with many oxbows; rugged mountains with lines of snow like some alien calligraphy; hills like ribs breaking through the plain; ice-covered round lakes. Mostly the scene was wonderfully clear, but occasionally it was veiled by light cloud.

The effect of this kind of scenery can’t be had from the occasional glance out the window; it is necessary to sit with your eyes glued to it. Later we swapped places and Rosemary watched a breathtaking, huge, snow-covered range of mountains, presumably the northern edge of the Tibetan plateau. I had no desire to go back to sleep at what was by then the middle of the day (Hong Kong time), so I watched the rest of the movie and started on the first part of “The Lord of the Rings” (partly as an introduction to New Zealand scenery). Breakfast and the start of the descent came with the fellowship in the Mines of Moria, where I had to leave them for a while!

Hong Kong was much more civilised than Los Angeles: one security check accomplished quite quickly, then the freedom of the departure lounge. The airport had a hanging sculpture consisting of multiple icosahedra made out of metal struts and fluorescent lights, but it was switched off.

Back on the same plane for the second leg, I had dinner (and saw the Fellowship of the Ring to its end) and then managed about six hours sleep until I seemed to be definitely awake. Out of the window, Toowoomba and Southport were both clearly visible (Toowoomba unmistakable from the winding road leading up the Range) as we flew just south of Brisbane. Dawn came over the Tasman Sea at about the same time as breakfast.

Off the plane, through immigration (very easy), customs and biosecurity (slightly more complicated; they insisted on washing the shoes I had walked by the Dollis Brook in last Sunday). Out of the gate, and nobody waiting. I wasn’t worried; indeed, when I got back from a visit to the toilet, Gaven was there looking out for me. He drove us to his extraordinary house, a castle full of wonderful furniture and clocks, on the top of a hill in



Albany on the North Shore. One puzzle was resolved, how he could look after us in Auckland while working at Massey University. (The University now has a campus in Albany, and Gaven and his wife were made offers they couldn't refuse to move there.)

After a shower, fresh bread and coffee, we felt much more human! Gaven had to go to his office in the afternoon, so left us the run of the house.

Gaven had told us that we could walk a kilometre up the road to the main road, or five or six kilometres in the other direction, or take a steep muddy path down the valley. We went for the second option and set off along the road, seeing a magpie-like bird with a shiny blue-green tail. Many Australian trees here: as well as eucalyptus we saw banksia, bottlebrush and Norfolk pine.

After walking for about half an hour we came to a crossroads, and thought about turning back, but we saw a sign saying "Albany Heights Scenic Reserve", and a little path leading off into the bushes. We thought we would do a quick turn around this and then head back.

Just as we were about to take the path, a car pulled up and the driver hailed us. It seemed that he was personally responsible for the path, and encouraged us to take it, telling us that on the way up it was metalled. We found out that it was the steep muddy path down the valley, and the metalling was incomplete and only started after all the hard work was over; but it was well worth the effort.

It descended via steps hewn into the clay (and very slippery after the recent rain) to a little patch of rainforest, with tree ferns and palms. Several small chattering birds flitted among the trees, flying acrobatics and fanning out their triangular tails. A bird hung upside down; not sure whether the same species or not. A couple more birds were heard but not seen: one with a characteristic chiming call, but close up we could hear a fine repertoire of chattering and clicking as well; and another with a very sweet bell-like song. At the creek at the bottom, we found a huge trunk of a kauri tree stretching up high above our heads. On the way up we found many more kauri. We also found pink flowers on the ground and saw a tree with bright red flowers, and several kinds of toadstool.



Back along the road, we arrived with our clean clothes quite muddy, and sat on the front porch letting the mud dry until Gaven came home. He ordered Thai food and went to pick it up; we tucked in happily. About 7pm Rosemary suddenly crashed out and we took ourselves off to bed. I slept soundly until 1am, but then my ankle (which had gone again late in the day) was hurting and I only managed fitful naps and some factorisation of polynomials until morning; but Rosemary slept soundly all night.

The next morning we met Dianne over a leisurely breakfast, just back from a conference in Coff's Harbour and a visit to her father in Mackay. We went out

with her to pick figs, and then she picked up a couple of pockets full of feijoa, which we sampled – a rather easily acquired taste, I think, though Gaven professed not to like them. From the verandah we watched a kingfisher on a wire. After as much displacement activity as she could reasonably manage, Dianne went off to her lab (she has twenty postgraduates and quite a few postdocs in her ecology/conservation lab at Massey), Gaven to his office, and we were left to have an easy morning.

The “white toy” (my Asus eee-pc) proved its worth once again. It easily connected to the wireless network in the house, without even needing to ask a question, and then both Firefox and ssh worked flawlessly. The Windows laptop, on the other hand, complained about this, that, and the other, and after a lot of effort I was finally defeated because it couldn’t proceed without knowing the ISP. So we were able to read our email (with a bit more information about the rest of our trip), make train bookings (we will take the train to Greymouth and back, then train to Picton and ferry to Wellington, and then to Hamilton in three stages) and a guesthouse for one night in Ohakune on the way. So everything is sorted as far as Hamilton now.

When Gaven came back he whisked us off to the beach, at Long Bay. I knew, looking at the beach and the water, that the sea would be good for my ankle, and so it turned out. I rolled up my trousers (having not had the wit to change into shorts before we went), hobbled down to the sea, and let the warm Pacific wash around my foot and shin. The beach itself was backed by low grassland, but there were high mudstone cliffs at each end, with the native pohutukawa trees precariously perched on top or lying, still growing, at the foot (in contrast to the imported pines, which had splintered and died as a result of a cliff fall).



There were many shells of varied and subtle colours, and Rosemary found a bluebottle on the waterline. We saw various gulls, including black-backed and black-billed (some juvenile) and several pied oystercatchers.

Then home where Dianne cooked rack of lamb and baked the figs we had picked that morning, and also spent some time sitting with the rest of us on the verandah. We discovered that the mostly black bird with turquoise sheen we saw yesterday, and the amazing singer we’d heard, are one and the same: they are tui, of whom several came and sat in the tree and gave us a concert. As well, there were blackbirds, chaffinches, and sparrows, all introduced. We also learned that, unsurprisingly, the birds that fanned out their tails are fantails.

I also learned a couple of things about the Forder lectureship from Gaven. Forder died sometime between 1970 (when a book in his honour was produced) and 1977 (when Gaven was a student at Auckland). Also, his perception, shared

by others here, is that, rather than the Forder money running out, it was put in the LMS general account and no track was kept of it.

We ate formally in the amazing dining room, with candles lit. After dinner, Dianne's mother and stepfather came around and we talked for a while, until Rosemary and I made our excuses, having an early flight to catch.

Gaven's hospitality has given us the ideal way to get over the jet lag, and has set me up so well for what follows – thanks Gaven and Dianne!

3 Dunedin

The next morning, Gaven was up when we came downstairs, and made us coffee with his wonderful espresso machine. The taxi arrived on time; it seems that this is his regular taxi, which had brought Dianne from the airport two days previously. With little traffic, we made good time.

The driver had a card on his windscreen saying "Falun dafa is great: Truth, Compassion, Tolerance". So I was not surprised when, after turning off the motorway, he started talking to us about Tibet and the Olympic Games. He told us that on his last visit to China to see his mother he had been imprisoned for a month and tortured, and finally deported back to New Zealand. We found ourselves very much in agreement, but he surprised me by predicting that the Communist Party in China will collapse during the Olympics.

Our plane had been borrowed from another airline (Thomson I think) who had borrowed it from yet another; the exit signs were in Spanish and the plane was unused to flying to cold places according to the steward. We had window seats to Dunedin, but there was nothing but cloud to be seen most of the way, except for one brief moment when the Captain drew our attention to the fact that Mount Cook was visible – in the distance, and on the other side of the plane, so just a glimpse through the opposite window – until we came down through the clouds over the coast just north of Dunedin, and turned inland with a good view of the city and harbour, up to the airport.

After landing, passengers were told that they could turn on their cellphones. But this order was later countermanded: another plane was using the airbridge, and we had to walk across the tarmac, where phones are not allowed. As we came in, there were Tank and Karen waiting for us. They whisked us off to their house, where Karen gave us a tour of the garden while Tank made brunch. Every plant in the garden has a story, and many had been given by or were associated with friends. She had just retired, and is looking forward to putting in more time in the garden; she apologised for the sparseness



of what seemed to us a blaze of colour and growth, with the melodious birdsong from the trees around, including a familiar sound: an (Australian) magpie. Then we made a leisurely and delicious brunch of kedgeree, cheese muffins, scones and jam (all freshly made), coffee and juice.

After brunch, we went for a walk on the beach. Quite a contrast to yesterday: silver sand, few shells, sea deep blue, piles of large kelp. There were black oystercatchers and stilts. (The bird book says that NZ oystercatchers are black but the northern ones have a pied phase.) The day was turning clear and warm and the beach was ours alone for most of the walk.

Then into town, where Karen had a lunch party with her former colleagues. Tank took us to the motel. After a break while he went to his office and we did some laundry, we walked in the **Botanic Gardens**, up the hill and through the South African section, rhododendrons, and native bush. Glorious, with the day just perfect: sun warm, sky clear, air with a hint of chill, and different but even more melodious birdsong. Back to the motel, past a solitary Moeraki boulder set in concrete. Tank picked Karen up, we walked towards town and had huge bowls of delicious and sustaining noodle soup at the Apsara Cambodian restaurant.



Next morning, the clocks went back, so we had a leisurely morning. We had coffee and showers (Tank had kindly bought us some real coffee, and the motel room had a tiny coffee pot), then I revised my first talk and copied photos onto the laptop.

We walked in to town for breakfast. The Governors should have been open but had a “Closed” sign up. Someone bolder than we went in and asked – the staff hadn’t shown up. So we went to Capers instead and had a fine breakfast of pancakes, smoothies and coffee. Then we walked to the Octagon (where we bought postcards at the tourist information) and the railway station (where Rosemary booked on the Tuesday morning Taieri Gorge trip). The tourist information office was virtually empty when we walked in, but just after us came a huge party of tourists who tried to pay for their purchases with U.S. dollars. At the station, the volunteers who run the railway were in a state of shock, having had to put extra carriages on the train to cope with an unexpected large party.

Walked home, with a stop at a shop selling cheap trousers and very cheap binoculars. I went out for sandwiches. After lunch, Derek and Marilyn Holton picked us up for a birdwatching trip to the peninsula. And what an afternoon we had – even Derek as an old hand was impressed.

On the way out, and often throughout the day, we saw harriers, near or far. First we went to Hooper’s Inlet and drove right around it. We saw white-faced heron standing or flying, oystercatchers, stilts, paradise ducks on sea or land (the

males with black heads, the females white), mallards, teal, a little shag on a post in the water, half a dozen pukeko (swamphens) by a small stream on the other side of the road, and a couple of black swans.

Then we drove to Allan's beach, between the inlet and the ocean, hoping to see penguins moulting, but the tide was too high to get around the point. There were a couple of black-billed gulls on the almost empty beach. But there, taking his ease halfway along the beach just above the highwater mark, was a huge sealion. We went over to look, not going too close, but he was not much interested in the phoho-opportunity and mostly just lay there looking like a big piece of driftwood.



From there we went over to the harbour side of the peninsula, where we could see a huge cruise ship at anchor. Derek said that if the weather is too bad for the cruise ships to enter Milford Sound, they come round and moor at Port Chalmers instead. This explains the vast number of people in town this morning and the chaos they had created.

We drove to Pilot Beach. There were a couple of blue penguins moulting, but as they hide away in their holes to do it there was not much to see, just a blue-grey blur in the darkness. But two big seals were lying on the ground by the path, and while too lazy to move, would raise a flipper from time to time. Then a large dark-coloured bird, almost certainly a giant petrel, came swimming by. There was a big crowd of black-billed gulls, who got extremely perturbed by this, and a patrol went out to see it off, which they did rather viciously.



There was time for a cup of tea before the Penguin Place tour Derek had booked us on, so we went up the hill to the albatross colony. The woman running the tea shop greeted us with "I've been cleaned out!" A party from the cruise ship had descended on her. But she had a few cakes left. No sign of any albatross flying, but we went in for tea and cake and sat by the window. Right on cue, a solitary albatross came soaring over the hill and circled while we finished our tea.

I read in a book we acquired later in the journey an astonishing and inspiring fact about the albatross. The young do no flying practice; they simply step off a cliff into the wind, and then don't touch land again for three to six years.

On to **Penguin Place**, where we were given a quick summary of the yellow-eyed penguins' life cycle before getting on the bus to head for the penguins themselves. The weather was threatening rain but held off for our tour. The penguins are monogamous with a relatively low divorce rate, and they are tagged and given names so we can hear their life stories. Most of the penguins we saw, having

hatched their chicks, were either moulting or just finished moulting, so either extremely scruffy or extremely neat. We saw many penguins, including some that the guide didn't recognise; for one of these, he read the tag number and radioed it to base, and was told that it had been tagged as a chick two years ago and this is the first sighting since. This was just after we'd seen one penguin call its mate out of the shelter, when they put on a long display of the neck-stretching that means "How pleased I am to see you!" and then headed, waddling and bouncing, up the steep hillside until they disappeared from view behind the bushes.



We watched penguins coming out of the sea after a day's fishing. Mostly they stand on the beach for some time to get their breath back; but one pair, whom we'd seen "porpoising" in the waves (this means just what it sounds like), came out of the water and sprinted up the beach into the dunes. The guide said that they had probably seen a shark or sea lion and were terrified.

There were a couple of seals stretched out on comfortable beds of seaweed on the beach, and several more lying on the grass (or rather, where the grass had been before their body oil killed it off).

Back to base, and into the car to drive back to town, and the rain finally started seriously, having so kindly held off all afternoon.

Derek and Marilyn took us to an Italian restaurant called Etrusco in what had been an elegant Edinburgh-style first-floor tea-room (for Morningside ladies, as Rosemary put it). The service wasn't very good (they managed to ignore us for long periods), but the food and wine (a New Zealand Malbec) were well up to scratch.

The next morning, breakfast in Capers again, and sharp on the dot of 9 there was Peter Johnstone to pick Rosemary up for the day. I went in to the University, and found Karen in Tank's office, just about to leave. We had a lot of discussion about the sad state of universities, and also during Tank's absence managed to revise my talk a bit, read my email, and had lunch in the small café downstairs in the same building.

After a few alarms and excursions (e.g. Tank had to attend an emergency meeting on a student caught cheating in a test), it was time for my talk on [Sudoku, mathematics and statistics](#). I couldn't run overtime since there was a lecture in the same room immediately afterwards, and perhaps I erred a little on the side of brevity; but it was well received. There were 14 people present.

In the afternoon I went back to the schedule, which is now clear as far as Wellington. I was dismayed to find that for Palmerston North I didn't even have the name of the contact person, let alone details of accommodation and talks. For

Hamilton I have all but the last of these. With Tank's help and that of Charles Little I got the name and email of Matt Perlmutter in Palmerston North and sent him an apologetic email. Ernie Kalnins has promised that the secretary will send me the talks for Hamilton soon.

In the evening Tank and Karen took Rosemary and me to dinner at the Indian Summer restaurant. It was really good: portions just the right size and beautifully cooked, mango lassi to die for. But we were too full for dessert. (Had they had kulfi I might have been tempted.)

The next morning, after another really good breakfast at Capers, I went with Rosemary to the station and put her on the [Taieri Gorge Railway](#), then returned to the motel, picked up my stuff, and went in to the department. There was a reply from Matt, so Palmerston North is now sorted. Tank told me about the permutation avoidance problem that several people here are working on.

I had lunch of sushi with Tank, then gave my second talk on [Scenes from mathematical life](#), to 20 people. It went well except for a technical glitch in the middle when the screen went blank, but we soon got that fixed.

After that I read my email and found a response from a new contact person in Hamilton (Kevin Broughan), so that part of the schedule is now sorted. Also, I booked a motel in Paihia on the Bay of Islands for the four days between Hamilton and Auckland. The only technical thing to be done now is to book buses Hamilton - Paihia and Paihia - Auckland.

After Tank had showed me his and Karen's stunning photos of Easter Island and Chile, I walked back to the motel. Derek and Marilyn picked us up at 7:00 for dinner in the Bacchus Wine Bar. We ate very well indeed: I had blue cod, then lemon cheesecake, and we had a pleasantly fruity Carrick sauvignon blanc from central Otago, and talked about many things including Julian Jaynes' *The Origin of Consciousness in the Breakdown of the Bicameral Mind*. Too tired to pack when we got back, so we did the crossword and went to bed.

4 Christchurch

The morning dawned clear and beautiful, with just a few tiny white clouds. A last breakfast at Capers, and the job of packing (things no longer fit, and a new suitcase will almost certainly be necessary). Then Tank came and picked us up and took us to the University where we had the use of a computer and a morning to read email once more. He went off to give a lecture, and Karen came to take us to the bus station. Check-in was remarkably informal: two plastic boarding passes with no journey-specific information on them, and no announcements. Tank and Karen have looked after us so well in Dunedin!

The most mountainous part of the journey was right at the start, with a pull

up the very steep hill overlooking the valley of the Water of Leith, with houses perched precipitously on the cliff above the old quarry on the other side; then down to the inlet at Waitati, where there were a few waders on the mud but too far away for identification; then up another steep hill on the other side.

The first leg, to Oamaru, was through pretty, undulating country with sculpted hills and tiny settlements. We saw quite a few harriers. The farms had mostly sheep, but some cattle, goats, deer, and alpaca. The trees were colouring for autumn, most noticeably the lines of poplars. One nice stretch took us along Katiki Beach, just before the famous Moeraki Boulders; we saw a sign to the boulders, but didn't get near enough to say beyond a doubt that we saw them. We made a refreshment stop in Oamaru, where the bus company shared premises with a nice old-fashioned café where I had a very good (but solid!) mutton pie. We had time to walk down to the sea, past one of several churches made of the characteristic Oamaru limestone. On the shore, there was an old station with some strange piece of machinery (including one passenger carriage) on the track. (Later we saw one party of track workers laying ballast, and later still a freight train with quite a big load.)



Soon after Oamaru we crossed the Waitaki River. This was one of several very wide braided rivers we saw which were carrying almost no water but looked as if they would be raging torrents in the time of snow-melt.

The crossing took us out of Otago and into Canterbury, and the start of the Canterbury Plain. Almost immediately the sky darkened: we were under a pall of smoke from burning stubble, held down by a temperature inversion, so that only the nearest mountains were dimly visible through the haze, and out to sea was a filthy brown smudge. At Winchester, the smoke was so thick that the sun went red. So much for New Zealand's green credentials! This was the Shire in the hands of Mordor. We also saw the very high density that sheep and especially cows are kept at here, and were told later that the huge irrigators suck the aquifers dry and run-off from the intensive farms pollutes them with nitrates.

The plain, especially after Timaru, was much more densely populated, with reasonably substantial towns quite close together. Thick pine hedges presumably acted as windbreaks, but also blocked the view.

As we approached Christchurch, the sun set. The mountains became clearer, their milky blue standing out against the rich orange of the sky. Crossing the Rakaia River, we could see one large peak on its own, which may have been Mt Hutt. A tiny new moon hung in the orange sky. The other side, over the Banks Peninsula, the earth cast its shadow on the smoky sky. The towns, and the suburbs of Christchurch, sprawled along the highway, with huge out-of-town shops and used car dealers.

At the bus station, there was Ben Martin, who took us to the motel, and also told us that a party including Angus Macintyre and Douglas Bridges, were going out to eat and we were invited to join them. We phoned Angus and set this up, and then Ben kindly gave us a lift back into town to the restaurant.

We ate at Restaurant Indochine, which did Thai-influenced gourmet food. After shared starters (with especially good spare ribs), I had pork belly. We got through quite a bit of wine, especially at our end of the table. A lot of reminiscences – Douglas had been a student of Robin Gandy and Michael Dummett in the early 1970s, and did a good imitation of the inimitable Robin.

The next morning, after a breakfast much like our usual at home but seeming very modest in comparison to recent days, we walked in to the Mathematics department. On the way in, I had my picture taken leaning on a sign saying “Old Maths - Staff”. In the department we found Ben, who took us to our respective shared offices. There were computer problems: the firewalls are so secure that you can’t even access Google from the desktop computer without having the IT person come and spend a long time typing in complicated instructions. But at last it seemed to work – though later on, trying to upload a reference to the AMS jobs website turned out to be a nightmare; in the end I am not sure if both pages were uploaded and had no way to find out without emailing the AMS webmaster.)



On what turns out to be the anniversary of the Wahine disaster, I got an email saying that there are problems with the ferries, and we will be an hour later in Wellington. Everything else fine. Kevin will book a bus from Hamilton to Paihia at a civilised time of day.

We had lunch in the Staff Club, a fine old building formerly the house of the Rector, and then walked randomly in its extensive and peaceful gardens, where a couple of late rhododendrons were still in flower.

In the afternoon Ben and I talked about random 2-in digraphs, then it was time for my talk. We couldn’t get the built-in computer to respond, so it was the white toy to the rescue again! 20 people came, many of them students, and it went well, with interesting questions afterwards. Then a cup of tea and some further talk, and so back to the motel.

We ate in the motel dining room – there is not much else within walking distance.

The next day was the low point of the trip so far. In the morning, I felt quite ill (not from dinner, I think), so had to scale down my proposed sightseeing somewhat. I went to the Riccarton Bush and wandered around the little patch of original New Zealand bush. The most striking thing was the birdsong, an intense mixture of melody, warbling, and other sounds quite unlike what I have heard elsewhere.

But I couldn't stop for too long, as I felt like throwing up, and thought that this wouldn't really be appreciated in a conservation area. The rest of the walk was rather dire – I went to the station (and saw two big freights go past, one in each direction), and to Hagley Park (but no time for the Botanic Gardens), and then back to the University by a somewhat indirect route, trying to keep off the big roads of which I had had more than enough. I got a sandwich and managed to eat it in the Maths common room without throwing up, then went to my office, where I couldn't manage to log on to my account (presumably the fix provided yesterday by the IT person was only short-term). I tried to have a short nap, but was interrupted by Douglas Bridges coming for the money for dinner the first night.



I gave my talk on the random graph to 13 people. Though I felt rather spaced-out (Ben had got me a couple of Panadin from the secretaries, which I had taken before the talk), I think I was coherent, and there were some good questions afterwards. We had tea in the common room, and then went over to the Staff Club where everyone drinks beer on Friday night. I had a cold imitation-bitter, which I drank very slowly, waiting for Rosemary and her host Dave Saville who were due to take me to dinner at 5:15.

When they hadn't shown up by 6, I went back to the motel. Perhaps there had been a change of plan, I thought, and they emailed me about it, and of course I didn't get the email. I even tried to subscribe to the service providing wireless internet in the motel; but you need both a mobile number and a New Zealand landline or it won't accept your application.

They showed up at 6:15, having fallen behind schedule. We drove out to Dave's place in the country where he has a bit of land, runs a few sheep, and grows vegetables, with his wife Sandra and daughter Jessica, a very self-possessed teenager who works for market research. The plan had been to have a guided tour of the property first, but given that dinner was ready we decided to eat. It was a delicious dinner of roast lamb with homegrown vegetables followed by a large assortment of desserts. I didn't disgrace myself until after the meal when finally what had been waiting to happen all day caught up with me: I rushed to the bathroom, just making it in time, and was quite violently sick.

Afterwards, having said I'd come on the tour, it was just assumed that I would come. First we took some hay to the first paddock of sheep to attract them over so we could see the ram; but he was shy, and let the ewes come up first, while he skulked at the back. We looked at the other paddocks, the vegetables, fruit and flowers, then sat by the fire and talked for a while, then he drove us back to the motel. Jessica gave Rosemary a small bag of her own cherry tomatoes, and came with us for the ride. I perked up enough to call a taxi for the morning, on the

number that Jessica had spotted for us on a taxi in front of us on the road.

Up early the next morning to have breakfast before the taxi came, but breakfast was late and the taxi early and we were still eating when it came; but we got away in time. A quick journey to the station, and soon we were on **our way to Greymouth.**

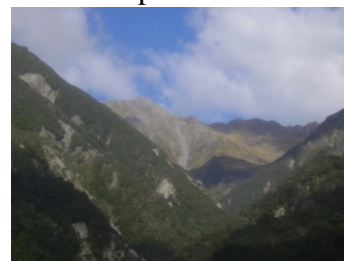
Out over the rather dull Canterbury plains with the view blocked by hedges and the grey clouds low in the sky. A thought struck me. It is usually assumed that Lewis Carroll's vision of Wonderland as a country divided up by hedges and ditches was based on the view of Otmoor from Beckley, which actually doesn't look much like that. But he was a fellow of Christ Church, where the association for settling Christchurch and the Canterbury plains had been set up not long before; perhaps it was talk of this in the common room that had inspired him?

We made various stops to pick up or set down passengers, but at Springfield they had a longer stop to put on an extra locomotive, and we were allowed out for five minutes. The buffet sold "The pie you can trust". Somehow, the issue of trusting a pie never occurred to me before!

After Springfield we began climbing. The clouds cleared to give blue sky and sun, with just a few white clouds drifting as mist about the tops of the huge mountains. We soon came to the first of a series of spectacular views of the Waimakariri River, in brief gaps between tunnels. The river flowed strongly in a small channel of its wide stony bed below rugged mountains.



We turned off up Broken River, which we crossed on an impressive viaduct, and then up a smaller creek. There were many willows, with leaves much yellower than those we'd seen before, and a poplar which reminded me of the tree in *The Mabinogion*: the trunk had split, and one side was entirely green while the other was bright yellow. At Craigieburn we had a short stop to cross a coal train. Rising to Arthur's Pass, and crossing the Waimakariri (which had risen to our level), the vegetation changed to conifers. Another five-minute stop, whose real purpose was made clear by the ugly heaps of cigarette butts under the shrubs in the gardens on the platform.



Soon after, we went through the 8.5km Otira tunnel and out onto the western side of the Alps. The vegetation was different again, much more lush in this high-rainfall area. Coming into Moana, there was a good view back to the mountains behind Lake Brunner. After this we were in what I'd imagined as much more typical New Zealand scenery: very green, scattered cattle and farmhouses. But soon we went through a valley that was almost sub-tropical in appearance, with swampy regions of ferns and flax plants. These two types of scenery alternated the rest of the way to the Grey River and down to Greymouth.

The town of Greymouth belied its name: not at all grey, and not at all workaday as the guidebook claimed, it lay sleepy and quiet in warm sunshine under a cloudless sky, with colourful painted wood buildings and fine views of distant mountains. We walked along the floodwall to the very un-busy harbour, where three cormorants sat on three posts next to the slipway, then back past the colourful Duke's Backpackers building. No time for museums, shops or pubs (unfortunately!) as we had just an hour before the train left.



On the way back, with the window seat and facing the other way, I got quite different impressions. I attempted a few photos from the moving train. For this, the usual rules have to be forgotten; no foreground! One should look ahead to check that no trees are coming up, but the digital camera has a small delay, so sometimes the best-laid plans are foiled. But some pictures turned out tolerably well.

The train took a winding course up a valley, seeming to head for impenetrable walls of mountains but going round a corner at the last minute, and at one stage was heading more-or-less west. But we came at last to the Otira Tunnel, lading to Arthur's Pass where we had a short stop. Then back past the amazing views of the river, not so sharp now with no sun on the bottom of the valley, and across the plains back to Canterbury.



Birds seen: magpies, harriers, pukeko, plovers, paradise ducks. Also cows with markings like Wessex Saddleback pigs, and huge numbers of beehives – sometimes it was clear that the bees were foraging in huge stands of gorse still in flower.

We walked back from the station, stopping for dinner at a Lebanese restaurant (really just a kebab house) on Riccarton Street, and had an early night.

5 Wellington

The alarm woke me after a good night's sleep. For the first time this trip, I awoke without any aches, pains or grumbles. The taxi arrived early again, and soon we were off to the station, with the Morning Star shining over the city street lights in a beautifully clear sky. At the station we were in good time for **the train to Picton**.

Before we were out of the suburbs, we were into a thick mist, through which the rising sun loomed mysteriously. After a while it thinned to a low ground mist, with silhouettes of animals and trees against the silky white. For some time we were in mist of varying thickness, with no distant views. Sheep near the railway line scattered in panic at our approach, though this must be an everyday occurrence for them. We also saw magpies, plovers, and paradise ducks.

The mist cleared briefly to give us good views of the Hurunui River. Then through another patch, until we came to the Conway River, where it finally cleared away to reveal a beautiful sunny day.

Descriptions of Paradise, Fairyland, etc., all stress the clarity of the light and the brilliance of the colours; this is exactly how it was as we went down the Conway Valley. The rich gold of the willow and poplar leaves, the green contours of the hills on the other side, tiny birds clearly visible in the air between.

Then we came to the sea, and decided to go to the open viewing carriage for a while. We passed deserted beaches, rocky outcrops, headlands, and the waves breaking on rocky islands. Once we saw dolphins leaping in the waves, and once I thought I saw a whale leap far out to sea: just a dark smudge followed by a white smudge, not at all certain. There were seals on the rocks, a small group of herons on a beach, and cormorants a-plenty.



After Kaikora, where we made a short stop, we briefly had tall snow-capped mountains on one side of us and turquoise sea on the other, until we were back on a rocky coast of headlands and beaches bounded by hills. I saw numerous seals on the rocks and half-a-dozen herons on the beach. The road was between the railway and the sea, and we past several roadside crayfish stalls. Through sand dunes, we turned inland into a region of hills looking like overgrown green sandhills. The clarity of the sunlight was slightly diminished by a belt of high wind-tossed cirrus cloud. Past Lake Grassmere salt-works with its huge piles of salt, and the North Island in view in the distance. Coming into Seddon there were lots of vineyards, many of them new plantings.



Over sandy hills and past Big Lagoon to Blenheim, with industrial-scale wine-

making, vineyards stretching as far as the eye can see and tended by tractor. Then up a steep grade over hills covered with forestry plantations, and down into a long narrow valley with grazing cows and not a vine to be seen, which we followed all the way to Picton.

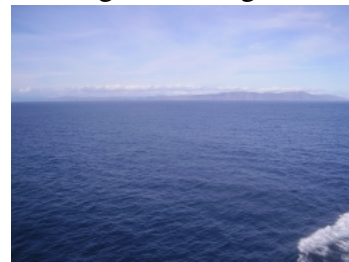
We disembarked from the train and went to the ferry terminal to check in. There had been some confusion over baggage: we were given purple baggage tags, but the train crew announced that green tags would be transferred automatically but people with blue tags should collect their bags and carry them to the terminal. It turned out that we were OK on this. There had also been some confusion over time: the ferry company had emailed me that the ferry was an hour later, but when we checked in at Christchurch the train company knew nothing of this; but on arrival at Picton, they announced that we had all been notified of the change.

It was indeed an hour later, which gave us time to walk around the Victorian seaside resort of Picton and do a short stretch on the Bob's Bay trail. After a while, Rosemary (whose knee was giving her trouble) decided to wait for a while while I went on. It was so nice to be able to jog along the track without any discomfort! Fine views of the Queen Charlotte Sound and back to Picton, and a bit of bush, where a weka (rather dark-coloured) scuttled off the path into a bush as I approached but let me come quite close. On the way back, something stung me on the hand (not too serious – New Zealand stings are rather mild!)



Back to the terminal, and we had time for a slightly rushed but very nice lunch before we were called to board [the Interislander ferry](#).

It headed out into a sea as calm as a millpond, with nothing but the high cirrus cloud in the sky, and a gentle breeze, on the fortieth anniversary of [the Wahine disaster](#). Stunning views down the extraordinary sound, with tiny bays under wooded hills containing a single house or a small settlement with a few boats, then more rugged as we got nearer the sea, until we passed some rocks off the last cape and were into open sea. In front of us was the North Island, high cliffs with blue mountains behind, stretching and fading on either side, and above all [a long white cloud](#).



We came gently across the strait and along the coast, entered Wellington harbour giving a wide berth to the rocky reefs sticking out from every headland. As we came into the harbour there was a very bright sun dog in the cirrus clouds. We docked right on time at the Interislander terminal, and Geoff Whittle was waiting for us.

He took us to our hotel, a serviced apartment in a tall building on the Terrace,

and came back an hour later to take us to dinner at his house (which is approached down a long sequence of public stairs, which take the place of roads at many places in Wellington, and along the unlit and overgrown garden path, so that it became a real adventure). Mike Newman and Noam Greenberg and their partners were also there. Geoff and Lisa have a Burmese cat called George who demands loudly to be the centre of attention; George planted himself on my lap, both before and after dinner, and made an absolute fool of himself by getting into ridiculous postures while I stroked his head and neck.

The delicious dinner of beautifully spiced lamb, Maori potatoes (which were introduced by very early Europeans and taken up by the Maori while they became extinct in Europe – one in particular had deep purple flesh and was absolutely delicious), vegetables, and green beans, and lot of good wine, was accompanied by hilarious conversation which had us all in stitches. A most enjoyable evening which saw us fairly late to bed.

In the morning we went out for breakfast. The hotel desk suggested going through the James Cook hotel to an arcade with cafés on Lambton Quay. We got a bit of a shock when we walked down an alley beside the hotel and found a sheer drop to the street far below! But in the hotel were lifts down to the bottom. We got a good breakfast with a newspaper, only slightly more expensive than Capers in Dunedin. We were told later that this slope is an earthquake-induced slip, and the big buildings on the east side of the Terrace have their foundations at the bottom of the hill.

Then up to the university: along the Terrace past some fine old wooden houses with beautiful window class, then up the hill past an old cemetery. We found the Mathematics Department easily and were shown the way down the convoluted corridors to Geoff's office, with its amazing view over Wellington harbour. Two labels on broom cupboards caught my eye: "Fossilised programmers" and "COBOL museum". Geoff had arranged a room (next door to his, with the same view) and a computer account; everything worked flawlessly right from the start. By the time I'd made a first pass through three days' worth of email, and found that Kevin had sent bus times from Paihia to Auckland, it was coffee time, and we went over with Geoff and Mike. Later Noam and a postdoc joined us, coffee became lunch, and we sat there until not long before my talk.



Fifteen people came to the talk and were a really enthusiastic audience. After 50 minutes I was still in full flow, and Noam (the seminar organiser) proposed that anyone who needed to could go but the rest could continue a bit longer. Nobody went. There were several very good questions afterwards. Then a bit of time to read mail again and catch up on my diary before dinner.

By now it was raining, not hard but persistently. Dinner was in the Yangtse restaurant, which specialises in duck: the crispy parts wrapped in pancakes, the flesh stir-fried with noodles and wrapped in lettuce leaves, and the bones boiled into soup. Nine people dined, and we had an excellent meal.

At one point, talk came round to the Forder lectureship. The view was that Forder had left his money to the LMS without specifying the lectureship, which would explain why it was put into general funds and why there was a delay in setting up the lectureship. It was said that Ioan James had visited New Zealand for the negotiations – he was long-term LMS treasurer so this fits.

Then along Willis Street and Lambton Quay, and back in the lift to the Terrace. The other town I know which has a lift (and many escalators) to get you from one part of town to another is Potenza, in south Italy.

Back to Lambton Quay next morning for breakfast, and then off up the hill to the University, where my second talk was at 11, on “Oligomorphic Permutation Groups”. Again it went down extremely well. Afterwards I commented to Geoff that he hadn’t asked for the one talk with matroids in it; he said that the department is strong on logic and algebra, and that he is happy to hear about these things! The weather was quite dismal by this time, so Rosemary came to my talk and then came to lunch in the Staff Club before going off sightseeing (by which time it had improved a bit).

Back to my office with Mike and Geoff. I had a long talk to Mike about cores and related things, which of course are right up his street. We tried to prove some of my conjectures about the complexity of hulls, without success, and I encouraged him to see whether he has up his sleeve any examples of permutation groups which are synchronizing but not separating.

Then it was time for coffee. Both the usual place and the Staff Club were shut, so we went out for a little walk to a delightful coffee shop in a suburban street opposite an old church, and with views across a valley to houses clinging to the hill on the other side. We stayed there for a long chat. Among other things I learned that the floor is made of recycled native New Zealand timber, for which there is quite a market now that the native trees are protected.

Finally it was time to return my key and say good-bye. I decided to go down in the cable car, so I walked to the cable car station on the edge of the **Botanic Gardens**. It was still light, so I went for a little walk in the Gardens, to luxuriate in the native birdsong and see a variety of New Zealand and Australian plants (and a magnificent red toadstool right by the path). Then I rode down in the cable car and up in the lift.



We went out for dinner, intending to have something light, but ended up in the rather grand Dockside Restaurant, with a view of the city lights reflecting

in the water. More than we intended, but extremely good fresh fish and a quite astonishing salad, as well as a gargantuan portion of chilli garlic bread for only eight dollars, and central Otago Pinot Gris by the glass.

Then time to pack and to do a Mephisto crossword before bedtime – the latter quite an achievement since we had no reference books, and five of the answers were really highly plausible guesses rather than certainties.

6 Palmerston North

Up with the alarm next morning to dress and go downstairs for the taxi to the station, for our first leg on the **Overlander**. At the station, the check-in window was closed with a notice saying that it opened at 7am, so we had breakfast (juice, bacon and egg muffins, and coffee) from a little stall. Just before seven I went back to check, and found the window open and a very long queue, which doubled in length before even the first customer had been served. He must have been especially difficult, since things moved faster after that; but it was still 7:12 before I was through, and by then there were more people behind me than had been in front of me at the start. Inevitably the train was five minutes late leaving. This must happen every day; why don't they find a more efficient system?

We found our seats and I took our bags to the luggage van, and finally we were off. Then another surprise: the conductor (or whatever the correct term is) was the woman who had been doing the check-in. She was Maori, and had no difficulty with the Maori names in the commentary, but seemed to stumble over the English; we eventually decided that what we had heard as “white wool” was really “vegetables”.

The clouds were very low in Wellington, hiding the tops of the hills. Through two long tunnels, we came to a valley full of gorse, with more houses on the green hillsides. But quite soon we came out from under the cloud blanket, and the weather improved from that point on. The suburbs dwindled away, and we passed Porirua harbour, and crossed a line of treeless hills to the seaward side of steep but not rugged cliffs, with very good views of Kapiti Island (which we had seen from the Straits ferry but failed to identify). At Paekakariki, there were masses of morning glory flowers, and well-preserved old carriages in sidings.

The hills turned away from the sea, and we followed along their base the rest of the way to Palmerston North, sometimes across a plain (with many cattle and a few vines) and sometimes through low foothills. We'd been told that this is more-or-less the fault line where the Australian and Pacific plates meet; quite believable, given the abrupt rise and scored profile of the hills. Higher mountains sometimes showed behind them, and after a while a huge mountain came into view.

Marijke Vlieg was to meet us at the station. The train came in earlier than the

advertised time (but I think later than it was supposed to arrive), and we managed to get out of the station while she was looking for us on the platform; but eventually she found us, and took us to the motel, on the wide and motel-lined Fitzherbert Avenue leading south to the Massey University campus. They had our room ready, so we took our bags in. Then Marijcke took us to show us the campus, and took us back a different way which included a stunning view of Ruapehu (the mountain seen from the train, which she identified for us) before dropping us off back at the motel.



The weather was now clear and beautifully warm, so we decided to make use of the best part of the day and went for a walk in the park and along the Victoria Esplanade, a lovely park stretching along the bank of the Manawatu River. We started downstream, dodging the men and machines laying a big pipeline, and then headed back a bit off the river, through the native bush. The air was full of birdsong. We heard several tui, but one in particular sat in a tree just above our heads and serenaded us for ages with a symphony of chimes, whistles, clicks, rattles and farts, his body sometimes quivering with the effort of producing the remarkable selection of sounds. For me, one of the highlights of the trip so far!

It was clear that the native birds preferred the native bush, while thrushes and huge numbers of blackbirds stuck to the manicured lawns with European trees including some fine English elms (of course, impossible to see these in England now). We walked under the river and up to the cliffs on the other side. We passed a sign warning us of rock falls from the cliffs, and right on cue, half a tonne of rock broke away without any warning and tumbled down into the water. On the flat ground beside the river we found a variety of interesting flowers including a woody bush with yellow lupin-like flowers.



We strolled back to the motel, and decided to try the Elm Café for lunch. They were still doing brunch, so we settled for that: the food was a work of art, both in looks and taste. During and after lunch, the sky became considerably more cloudy; though still sunny, the morning's sharp clarity was lost. Back at the motel we found a note asking me to phone Matt Perlmutter. The phone in our room wasn't working so I had to get another from the desk. I walked in to the University in the afternoon to touch base with Matt; about 3km, no signs but only one path so no chance to go wrong.



They have given me an office with no computer, but Matt got an IT person

to set me up so that I can connect the white toy to the network. I can't use a web browser, but ssh and scp work fine. Indeed, reading my email I found news that Adrian Smith has resigned as principal of Queen Mary, and proofs of the Topology paper with Sam Tarzi to be corrected; I was able to fetch both of them across without any problem.

I walked home, after finding a different way from the road to the University (through a little park on the banks of a stream, with many tree ferns). On the way home I saw a curiously jagged but localised black cloud in the sky along with all the white clouds.

In the motel I worked for a while. There was a dramatic sunset visible from the motel balcony. Then we walked towards town for dinner in the first eating place: it was pleasant enough though we might have done better in the Elm Tree.

We woke the next morning to pouring rain: the clouds and the amazing sunset clearly presaged a major change. Of course this played havoc with the morning traffic, and so Rosemary's contact at AgResearch was a few minutes late. I had intended to walk again, but given the weather I decided to blag a lift in the back of his tiny car. I walked up to the University through the little park, and found that the network connection was still working perfectly (unlike the situation in Christchurch). So I read my email and sent off the proof corrections to the Topology paper.

After coffee, Rosemary arrived from AgResearch, and it was time for my talk. Introduced as "the first Forder lecturer to use public transport", and faced with the most technical of all my talks (the one on orbit counting), to an audience of sixteen, I think I made a reasonable job of it. Then we went to lunch in the lovely old homestead, set in a beautiful garden, which was the original University building. By this time, the rain had stopped and the sky had brightened a little.

Matt had mentioned, in introducing me, the fact that the eleventh Forder lecturer should have come in 2007. At lunch, Robert Maclachlan alluded to happenings behind the scene but didn't encourage discussion. So perhaps I have misread the signals. I concluded that I really don't know what is going on.

After lunch we tested the equipment for tomorrow (which worked perfectly), and then I read email again before Rosemary's second talk. After that, a drink in the Staff Club. (In fact, it used to be the Staff Club, but the University took it over on some alleged problem about the licence, and saves money by not opening it all the time, so that often it is impossible to get a drink after a Friday seminar without driving all the way into town.) Then we got a lift back to the motel with a statistician. The rain was still pouring down; we tried the Elm Café but it was fully booked, so we got sandwiches in the BP service station and ate them in the motel room.



Next morning the rain had stopped; it was still cloudy (with small patches of blue) and very humid. I walked to the University, hearing the screaming of plovers as a harrier wheeled overhead. The river was much higher and the water very brown. I walked up to the campus through a different but even more pleasant garden, and discovered that Human Resources meet in a “tree house” (really just a house surrounded by trees).

My talk was in a much larger lecture theatre, and about 80 people showed up, most of them students. (Some of the students had to leave before the end, presumably to another lecture.) It went well, I think – there were no questions afterwards, again probably because they had lectures to get to.

Matt had a meeting, but had planned a trip with Kee Teo and Charles Little, so he drove us to Charles’ car (which he parks in a suburb about a kilometre from the campus). We went looking for Rosemary, but she wasn’t in the motel and we didn’t spot her on Fitzherbert Avenue or in the Square, so we went without her.

First we drove through the Manawatu Gorge, where the river has forced its way through the mountains. Lovely scenery but not as rugged as one might expect; the rocks round here are very soft. (On the road, there was evidence of recent rockfalls, the cliffs were covered with wire netting, and men in orange jackets were at work high over the road replacing the netting on a recent fall.) On the other side, a railway line (to Hawke’s Bay) twisted in and out of tunnels. It is clearly still used though not for passengers (except for a few specials).



After that we drove up to the wind farm, where there is a small car park right under one of the windmills, which swishes away above your head as you look out. The noise is not too intrusive. Kee resented the way the windmills intrude on the landscape, especially poking their heads over the rim of the gorge; but this seems so much better than a nuclear power station to me. The wind was quite strong and a shower was passing. (When it cleared later we could see a patchwork of sunshine and showers on the valley below.) Then back through Ashhurst to the University.

Charles told me about an idea of his which might throw some new light on the vexed existence question for Hadamard matrices. He has taken the same idea I used when Bert was writing his thesis, expressed it in terms of coding theory, and proposes to use the MacWilliams relations to get some new information. He gave me a copy of his notes. I will certainly try my hand at it! In another surprising connection, Matt told me that he is doing some calculations on root systems which involve thinking of them as matroids. I mentioned Gary Gordon’s name to him and promised to send him Gary’s email.

The sun had come out by then, and on a glorious evening I walked back to the

motel, with a detour by the Victoria Esplanade. A tui was singing in a tree, but I knew it wouldn't match the experience of two days ago, so I walked on.

We were sent off with a delicious and congenial dinner in the Elm Café. On the way there, the moon was shining brightly, close to full, and the Southern Cross, Pointers, Orion and a few other stars were struggling to appear behind fitful clouds.

7 Through the centre

The next morning dawned beautifully clear, the mountains sharp against the sky, but with an ominous line of low cloud on the horizon. After breakfast, Kee came to take us to the station. The train was due to leave at 9:45 and the official instructions are to arrive 20 minutes ahead of time, so we had told him 9:00, and he arrived a bit early. So we were at the station at 9:10. The door was locked. No problem, you just go round the side. Nobody on the platform. No problem, there are a few luggage labels on the table in the waiting room, you tag your own bags. I knew from Wednesday where the baggage wagon would be, and was there long before the rest of the (quite large number of) passengers getting on had figured out the place.

Out of Palmerston North, across the plains, through Bunnythorpe (the place where Glaxo began, according to Charles) and Feilding (the town whose plan is based on Manchester, looking almost but not totally unlike its model). Then we went through some low and rounded, mostly treeless, hills. The other side of the hills we crossed the Rangitikei River, climbed the other bank, and swung in a huge curve to follow the river.

The river ran in a very deep and steep bed in a wide and flat plain bounded by hills. Descending the west bank hills, we ran along at their foot, with views over the plain to the other side. After a while we turned up a pretty side valley, where we steadily climbed. Back over the hills to the main valley, which had narrowed down, and which we proceeded to cross and re-cross several times on huge viaducts more than seventy metres above the river, with very impressive views of the river and its high cliffs.

Again we turned up a side valley passing farms with deer and cattle. We decided to eat lunch before Ohakune; I had a railway meat pie and a can of Speights' Old Dark. The train reached high moorland with an army training centre, and eventually we arrived, just a little late, at Ohakune. We were the only people to alight from the train, but the staff opened the doors for us and had our bags

ready. And there on the platform was Nicolas Cowell of the **Dakune Lodge**. He took our bags and loaded them in the big car, then took us for a drive around the town of Ohakune (which is stretched between the railway and the main road), pointing out all the walking tracks, and finally took us back to his guesthouse and showed us our room.



He invited us to look at the paper. There, in the flannel panel, was a notice of an article about the eee-pc. He noticed that it caught my eye, and I said that I had one, which I got out to show him. We tried to connect it to his wireless network, but something wasn't working right, so we abandoned the attempt.

We went out for a walk. The weather had got steadily greyer as the train progressed, and it started raining almost as soon as we left the house (fortunately only a shower). Of the various options, we decided to walk in the National Park first. There were two loops, one said to take 15 minutes, the other an hour. We did both, a little slower than the signs suggested, partly because of Rosemary's knee, partly because we kept stopping to look at things.

The first, short trail was very level (suitable for wheelchairs). The air was full of lovely birdsong, and a fantail displayed to us from a low tree. This took us to the start of the second trail, which was a bit less well maintained. As we climbed, we noticed the air getting much colder, and the birdsong diminishing to silence, with only the sound of the stream in its bed and a train passing (presumably the southbound Overlander). Among the magnificent trees we saw were red and black pines, totara, tawa, and rimu; there were also many smaller trees such as pepperwood (the sign saying it grew to 2 metres was by a tree at least twice this height). I was a bit surprised at the lack of fungi, but at the end of the walk there were some, including a spectacular tree fungus and a big red one. We saw a New Zealand robin, who serenaded us with his squeaks, and an unidentified bird with a forked tail high in a tree who made harsher repetitive squawks.



When we came out of the national park, the display on the road sign was saying that the road was closed because of snow. Certainly the weather had turned much colder, but there was no sign of snow or rain where we were, and breaks in the cloud were allowing sunlight to play on a distant hill, and eventually on us as well. But it was too cloudy to see the mountains. We took the riverside path down to the other part of the town (on the main road where the shopping centre is). Enough sun came between the clouds to illuminate the very brightly

coloured autumn leaves, often standing out against the dark clouds. The bank was steeply undercut in any places, with trees and clumps of pampas grass perched precariously on the edge. On the other side of the fence was a complete contrast: cattle grazing country, with ragwort and brambles. We decided to continue on the Jubilee Walkway, which we managed to find despite the inaccuracy of the map (showing it starting on the wrong side of the river). This was more lovely native bush, more unkempt than in the National Park, but very atmospheric. We crossed the bridge into the town centre, checked out possible restaurants, and walked back to the Dakune Lodge. Rimu Street looked at first a bit like a street in Toowoomba (wide, grass verge and concrete footpath, red soil, old weatherboard houses), but then we got to the new developments including a village of yurts and the illusion was quite shattered.



Rosemary had walked her quota for the day and wasn't looking forward to another trip across the town and back. But Nicolas and Tasha offered to give us a lift down town, so we would only have to walk back. We ate at the Alpine Restaurant, run by a Austrian who had arrived in New Zealand in 1973; delicious pumpkin soup, venison and ostrich, and a very nice Eskdale merlot/cabernet/malbec. Also, the first place I have found so far in New Zealand to accept a credit card PIN.

Walking back, we found that the night had cleared, apart from fluffy white clouds over the mountains. The moon was very close to full, and stars blazed in the sky.

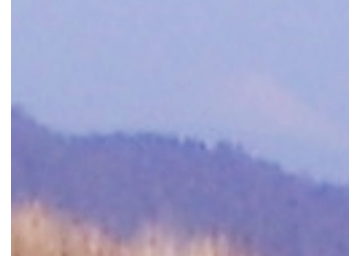
Arriving back, we had just started writing our diaries when our hosts also returned. So we tried out the wireless again; this time it worked without a hitch. So I showed Nicolas the [Astronomy Picture of the Day](#), and [my Wikipedia page](#), from which we followed a few links (to the [Erdős number page](#), and to [Toowoomba](#)). On the Toowoomba page we found a link to [Terry Tao's petition](#) against the closure of the mathematics department at USQ. I had been told about this but had not had time to look at it before; now, I decided that the time had come for me to sign it and put in my comments, which I did.

Next morning we showed up at 8 for the “continental” breakfast of cereal, toast and coffee, quite adequate for our needs. I had persuaded Rosemary that she had done enough walking and would be better off having a rest (needless to say I should have saved my breath – she went out and did the forest walk from yesterday in the reverse direction), but that I would walk the old coaching road, which Nicolas had told us about: before the railway was completed, northbound passengers would detrain in Ohakune and would be taken by horse-drawn coach to the railhead on the other line. Just as I was setting off, Nicolas said “Would you like company?”

He drove us out along the Old Station Road to the point where the track crosses

a small stream and goes up the hill. The roads were rather like those of my youth, dusty and unsealed. The hills in the distance were amazingly clear.

A plank bridge crossed the stream. Nicolas said that there are plans to build a proper bridge, but they have to do it before the trout spawning season starts, or else they are not allowed to do it until the season finishes. Trout fishermen trump trampers! The track went up a hill with fine views over the farmlands to various hills and mountains at various distances. At a certain point Nicolas stopped to get his bearings, and then directed my eyes to a certain mountain slope to look for a white thing. It took me a few seconds to see, ghostly and far far beyond the line of mountains, the symmetrical white shape of Taranaki standing up into the sky. Another of the most amazing experiences of the trip. (The photo doesn't do it justice though!)



This was a lovely walk altogether, full of interest. At a certain point Nicolas stopped to show me a lancewood tree, trunk as straight and thin as a curtain pole, sharp rough leaves pointing straight down. He told me to wait until we rounded a corner. There was an apparently quite different tree, with a thicker trunk completely bare of leaves and a crown of more normal leaves above our head. A mature lancewood. This, it seems, was their strategy for dealing with predation by moas. There is not a shadow of doubt, since around the mature lancewood were some younger ones in the form we had seen. We also saw a small black bird with white on its front, probably a tom tit.

The track left the old coach road – this crosses the line of the railway and the company do not permit its use. We descended on a well-made new trail (but steeper than the coach road, which had to have no gradient steeper than a horse-drawn coach could manage). We came to a tunnel, used by the railway before it was re-aligned some years ago. It is possible to walk into the tunnel, and possibly out the other end; but this is discouraged because it debouches directly onto the existing railway track (they sliced right through the tunnel making a new cutting). Following on, we came to the two huge viaducts, the old iron one, and the new concrete one on a curve, with spectacular views of both, and beyond down the valley and out onto the plain. Then up the hill on the other side, through the old quarry (closed after a blasting accident), past the old house of the Chinese family who were the first market gardeners (Ohakune now has a giant carrot, which we didn't manage to see(!)), and back to town.



As we passed the station, the snow-covered slopes of Ruapehu were visible, though the summit was still shrouded in cloud. Nicolas took me back to the guest-house a different way, round the backs of the houses in Park Avenue where there

are a couple of lakes being restored by private enterprise.

Apropos of the missed opportunities for train travel, including the rather stilted commentaries, Nicolas told me about a car junkyard (which we later saw from the train), which is world famous as a source of spare parts for old cars unobtainable elsewhere. In return I was able to tell him about Glaxo and Bunnythorpe.

His friend, a house painter, was in the kitchen, and they had coffee and cake, and offered me one on the house (despite the notice on the wall giving the charges for things like this). I picked up a magazine on the hearth: *Lifestyle Farmer*, with articles like “How to tell if your alpaca is pregnant” (if she spits at the male, she is!)

Then Tasha drove Nicolas to fetch the car, after which Nicolas took us to the station. There were two people on the platform already, waiting to pick up somebody arriving by train; they started in on a rant about the disgraceful state of New Zealand railways even before Nicolas had gone. By now the clouds had cleared and the whole of Ruapehu was visible. What a lucky choice we made with Ohakune as a stopping place!

The first leg was the short journey to National Park, the lunch stop. On the way we crossed the viaduct I’d seen that morning and a couple of others, and had some spectacular views of Ruapehu, the top covered in snow. Approaching National Park, Tongariro came into view as well. When we arrived, most people headed for the café but we thought it much better to join the very few hardy souls who walked through the little town to get a view of the mighty mountains unimpeded by overhead power lines, street lights, etc.



Shortly after leaving National Park, we came to the Raurimu Spiral, of which they are very proud. As we went round the spiral and the horseshoe bend, the conductor drew our attention to bits of track we had passed over or were about to pass over, much higher or lower on the slope. From one point, all three lines were visible. After this excitement, the buffet opened and I went to get lunch.

Down from the mountains, the country was much gentler. We went down the Whakapapa River, a tributary of the Whanganui, and then the Whanganui itself, and then turned up another tributary, the Ongarue. The valley became narrower, the strangely-shaped hills more rugged, and finally we left the river and after a short distance up a side valley plunged into a tunnel, emerging in the Waikato catchment. Now the scenery played out in reverse as similar-shaped hills receded and became less rugged and eventually we came to flat open ground. After the hills, cirrus clouds appeared in the sky beyond the small fluffy cumulus; who knows what change they presage?

8 Hamilton

At this point the driver put his foot down and we rattled along at what seemed like a great rate, spilling our coffee over ourselves, and arrived in Hamilton half an hour early, so that Ernie Kalnins, who was meeting us, was caught out and came while we were standing on the platform with our luggage. He took us to the motel to check in, and then whisked us off to a lovely relaxing evening at his house eating a delicious lasagne that his wife Anne had cooked. (Getting to the motel was a bit tedious since the V8 races, which had been on all weekend, had just finished and everyone was heading home very noisily.)

Then the coincidences began. Anne had grown up in Garston Manor, when it was a hospital (now it does wedding receptions including James' and Debbie's); her mother might have delivered Rosemary. She showed me an old photo of the manor house and a painting of the countryside at Bricketts Wood, including what is unmistakably an elm tree.

More talk about the future of the Forder lectureship. Could it be updated in the way that the LMS has done with the Hardy lectureship, having the lecturer based in one place and making trips elsewhere? Or combined with something like the Erskine fellowships in Christchurch?

Next morning, breakfast at Zigi's. (Rosemary had stayed here a few years ago and knew the best breakfast spot!) On the way we were surprised to see several camellias in flower, despite the season being mid-autumn. We put the laundry on before breakfast, and had it finished and dried (after a fashion) before Kevin Broughan came to collect us.

Walking back from breakfast, we spotted a little bird high in a dead tree. I was looking it up in the book (it was a grey warbler, I think), when a car with three youths in it pulled up beside us. "Excuse me, mister", said one of them, "are you a published author?" "Yes, and so is she," I replied. (Rosemary's book came out just before we left and she brought a copy to show to statisticians on this journey.) In Hamilton we also identified silvereye and mynah birds.

We started with a trip to **Hamilton Gardens**, and a walk round the Paradise Gardens, six small but beautifully executed gardens in various national styles: Italian Renaissance, Indian Mughal, Chinese scholar's garden (with a very dense bamboo grove), English (the weakest of the lot, I thought), American modernist (with a screenprint of Marilyn Monroe) and a Japanese Zen garden with raked stones, mossy boulders, and a lovely dwarf maple tree. The gardens backed onto the Waikato River; from one of the terraces, we saw a kingfisher. The Italian garden included a small classical amphitheatre that would be a splendid setting for chamber music or an intimate play.



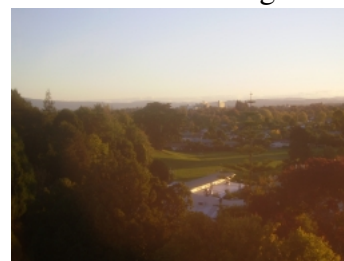
Then we went to the university, were given an office, and went to coffee, in the common room with lovely views over the sunlit campus and to the northern mountains. There was only a small time gap between coffee and lunch, but Kevin managed to tell me a few very interesting problems about factorials modulo a prime. At lunch quite a few other people joined us, sitting on a shady terrace. Then Kevin took me to a cash machine. On the way, we met the Vice-Chancellor (who admitted to having contacts in the Materials department at Queen Mary). Back to the Mathematics department, and Kevin went to sort out the lecture room.

It had cables all over the place, some of them connected to nothing, others to who knows what; some power points working, others not; no way to turn on the data projector except by standing on tiptoe; and in the end the system refused to respond to the white toy. The technicians tried to blame my computer, but in a room as disorganised as that, I know what the more likely source of trouble was. I found later that even the power socket on the lectern wasn't live, so the batteries on the white toy had run down somewhat.

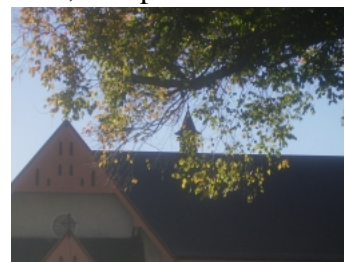
But no worry, Kevin found another room (much nicer, with a high ceiling and more seats), checked that the equipment worked, and went away to put up notices directing the audience to the new location.

The two back-to-back talks (mine on Sudoku and Rosemary's on row-column designs) went well, and even had some ideas in common. There were 23 people at my talk, slightly fewer at hers. Several good questions at both talk.

Afterwards we had wine and nibbles in the tea room with its stunning view, and watched the sun set, the light fade, and the huge moon rise in the clear sky. We were in the hands of the statisticians, who took us to the Domaine, a very good restaurant down town where I had venison followed by passionfruit creme brulee, with a Hawkes Bay merlot/malbec. (Our first choice had been a French wine, a Cotes de Ventoux, and it was remarked that the French have been forced into varietal labelling – it was a grenache/syrah – but sad to say it was unavailable; the restaurant are in process of changing their wine list and were running down their stocks.)



After dinner we were taken on a detour to see the V8 racing course through the centre of town: the stands and barriers not yet demolished, and piles of wrecked cars waiting to be taken away. Next morning, on the way to breakfast, we saw a traffic jam with the rush hour traffic being re-routed by police. It turned out that a car had run into the back of a bus just up ahead. By the time we finished breakfast, they had cleared it away and got traffic flowing again. The sky was clear and another nice day seemed in the offing.



Kevin arrived and took Rosemary in to town to go to the museum. Just as we let her out, the rain started coming down in buckets. Kevin said, “By the time we get to the University it will have stopped”, and he was almost right. It did rain several more times but with nothing like the vehemence of this downpour.

I read my email, which included one from Eamonn (about an interview for the Kim Hill show on Radio New Zealand while I am in Auckland), one from Marie telling me that New Zealand was having a serious drought (I was able to update her on that), and one from Harold about Wayne Gould, the New Zealander who introduced the world to Sudoku, along with two things to read from students which after some difficulty I emailed to Kevin who printed them out. We had lunch (indoors, as it was drizzling), and I had a long talk with Kevin about various mathematical topics, including Lehmer’s conjecture and a variant, and some of the work we have done at the Newton Institute about chromatic roots from the viewpoint of algebraic number theory.

Then it was time for my talk on “The Random Graph”, once again in the nice room on the third floor. It went down very well and provoked a lot of discussion, both in questions after the lecture and at refreshments afterwards.

We went to Cullen’s for dinner, where I had tuna coated with black and white sesame seeds (so tender that it was easy to cut with chopsticks), with dipping sauces and tempura vegetables. We had a bottle of pinot gris from Hawke’s Bay. Kevin said that one suggestion I had made to him (that the case $n = 4$ might be easier than $n = 3$) seemed to have been a good one.

9 Interlude in Northland

Next morning we walked to Zigi’s for breakfast and found it in some disarray. I think the chef hadn’t turned up; it was almost an hour after our arrival when the food finally came. Rosemary was getting a bit nervous as she had left her packing until after breakfast. But it finally came together, we were ready a minute before Ernie arrived to take us to the bus station.

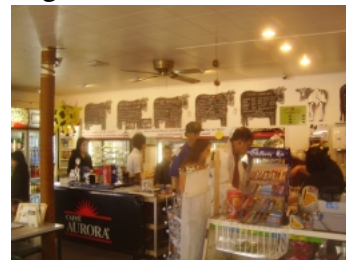
Apart from trying to board the Wellington bus by mistake (none of the buses are labelled and there are no set stops), we got away all right, though rather late. But the driver didn’t exactly inspire confidence. He hit the kerb turning onto the expressway, and nearly got us squashed by a big truck that wouldn’t let us off the slip road. After the bus had laboriously hauled its way up the hill out of the Waikato valley, the driver remembered that he had forgotten to let someone off, so he had to turn off, cross the expressway, drive all the way down the hill, turn round in a deserted service station, let the passenger off, and struggle back up the hill. (He had probably forgotten because he was deep in conversation with a passenger sitting behind him, not concentrating on his driving. At one point, in answer to a

question, he said that he had been driving the route for thirty-five years.) Then at Manukau, he drove away with one disembarking passenger's luggage; she had to bang on the side of the bus to get him to stop.

It was not such an interesting journey as some we'd had. Flat plains of the Waikato, with a few small hills (the first ones the river had burst through, the next it detoured around), until we left it for good. A much grander river than any other we've seen here, wide and full. Then mostly suburban from there into Auckland. After the various adventures, the bus was nearly three quarters of an hour late, but we had time for a toilet stop and some sandwiches before the Northland bus came.

This bus was also late, though more through a comedy of errors than incompetence, I think. The refuelling stop in Albany involved a lot of pointless driving up and down the same road. The driver was a bit slow getting us back on the bus after the refreshment stop. Then he drove all the way to the other side of the village of Kawakawa to drop off a boy, and all the way back, only to find that his parents were waiting in a small park just off the main road.

This was a very scenic stretch, once we were out of the tedious Auckland suburbs. At Orewa, and for the next little while, we had abrupt cliffs sheltering tiny beaches, islands out to sea, and green hills behind. There were a couple of estuaries, with wide mudflats, some covered with mangroves. Then we left the coast and headed over rugged hills. We came down to touch the ends of various inlets from Kaipara Harbour on the west coast. The refreshment stop, halfway up a very long climb, was at the Swinging Cow café. It took its name and its theme from a clock whose face was in the shape of a cow, the cow's udder being the pendulum. All the decor, menu boards and gimmicks for sale, seemed to be cow-themed. We were not hungry so strolled around outside until it was time to go.



From the top of this hill we had a splendid view of Northland: blue sea and headlands and islands, green grass, shining brilliantly in the westering sun, with the burnished leaves of the trees. A magical vision, which we then descended into. We touched the beach, crossed some more hills, went through extensive mangrove swamps on inlets from Whangarai Harbour, and finally into the town of Whangarai. Because of the delay, we were caught in the town's appalling rush hour traffic, but finally we escaped onto the open road. A steep ascent and a long descent into the valley of the Otiria River. The sun was behind a cloud full of holes, and crepuscular rays poured out in all directions.

After Kawakawa, it was too dark to see anything much. We disembarked at the pier and walked back to the Paihia Star Motel, which we had spotted coming into town.

After checking in, we dined at the Swiss Café, and bought breakfast at a con-

venience store on the way home.

Next morning, we were woken by an unidentified bird singing descending fifths. After a rather late start, we walked back to the Maritime Building at the pier. The girl at the Fuller's desk in the entrance managed to persuade us to buy tickets for the all-day cruise on Saturday, and then sold us ferry tickets to Russell. She shouldn't have done this – there are ferries run by several different companies and the tickets are not interchangeable, so the correct method is to go down to the end of the jetty and buy a ticket on the ferry about to leave. In our case this happened to be a different company, but the Fuller's all-day cruise was just about to leave, and agreed to take us across to Russell.



We walked along the sea-front at Russell, while the clouds cleared a bit and the sun came out, and went into the tourist information centre for a map. The town had a sub-tropical feel to it, with lots of bougainvillea, hibiscus, morning glory, and many other bright flowers. We decided to look at Pompallier and the museum, then buy lunch and take it to Long Beach.

We paid our entrance fee for Pompallier, the old Catholic mission: my National Trust card would have got me in free but I couldn't find it. Just as we walked through the gate, we were entranced by some glorious Polynesian singing, a soloist answered by a chorus in close harmony. It turned out to be a party of Fijians who were just finishing a guided tour, and had burst into song. The third highlight of the trip! The building had been used for printing Bibles and sacred texts translated into Maori, and there were interactive displays showing how the printing was done and how the leather for the bindings was made. There was also a lovely colonial garden from a later phase, including an orchard where the ripe fruit was providing a feast for a pair of silvereyes. The sun was coming out, and the colour of the flowers were brilliant.



We bought a book about the New Zealand wars, and went to the museum, where pride of place was taken by a one-fifth size model of the "Endeavour". (On his first voyage, Cook spent some time in the Bay of Islands.) The rest of the exhibition was a varied and slightly motley collection of guns, Maori weapons and artefacts, a huge crayfish, whalebones, sharks' jaws, etc. We bought the last two sandwiches and Bundaberg ginger beer in the supermarket and walked over to Long Beach on the other side of the peninsula to eat it. A lovely secluded beach with stunning views to vistas of fur-



ther islands and peninsulas, where we sat in glorious sunshine eating it.

We agreed to take the fourth historical trail on the museum's list, which would take us to Okiato, then catch the car ferry to Opuia and walk the Pahia-Opuia walkway home. Unfortunately the historical trail was almost entirely on the main road, with no footpath. There were a couple of steep climbs where it went over headlands, but for a long stretch it went round Uruti and Orongo Bays, with lots of mangrove flats. Out to sea beyond the mangroves in Orongo Bay was an oyster farm. We saw herons on the mudflat between us and the oyster farm, stilts and oystercatchers, and a pair of kingfishers who perched on a power line and kept flying on just a bit ahead of us. About here we found a nice graded path off the road, just above the mangroves.

Eventually we took a turn, hoping it would be the Okiato Walkway. It wasn't, but led us to the walkway, a steep path going up and down to creeks in the forest, with some of the trees labelled (one a kauri, one a mature lancewood). The air was full of birdsong, and we saw some good fungi including a huge round one a long way off the path. We went slower than we should have, and decided to skip the site of the original government in Okiato and press on to the ferry. For a dollar each, we were taken over to Opuia.



From the ferry, we saw a tern fall to the water like a stone after a catch, and then a larger bird (which looked like a gull but I think must have been a gannet) doing a power dive into the water with wings tucked in.

We found a bar and sat on the verandah; when a man came, we asked for tea, which he agreed to bring. It took a long time, and eventually he brought it with an apology for the delay, and said that in fact the bar was closed from three to five, and that because of this he wouldn't charge us for the tea!

We went to look for railway rolling-stock on the old line, but it has all been converted into a mammoth marina with rows and rows of yachts; so we eventually set off for Paihia.

It was a delightful path, following the coast. Sometimes the path was cut out of the soft cliff rock, just above sea level; sometimes it went higher on the cliffs through lovely native bush, with many tree ferns at the lower levels; sometimes it descended to tiny secluded coves, some with camping sites, some completely deserted; and at the Waimangaro River crossing, it took us on a long boardwalk through the mangroves. The light was beginning to fade, and the reflections in the calm waters of the Veronica Channel were really lovely. But the steep narrow paths on cliff edges were taking their toll of Rosemary, and after crossing over the Haumi River bridge, she decided to walk on the road back to Paihia. In the gathering gloom, I took to the beach.

It was all easily negotiable, or would have been if the light had been better. I

had to scramble over some rocks; at one point, I nearly walked into a rock pool, mistaking it for a patch of sand; at the end of the path, I nearly walked into a chain put up to keep cars out. But eventually I was back, arriving at the motel almost exactly simultaneously with Rosemary.

In the end, the maps were not a lot of help to us. Both the Northland map (which included an enlargement of the Bay of Islands) and the 1:50000 map by the Land Information Department were inaccurate about the Okiato Walkway; we only got accurate information from a girl jogging the trail who passed us. The Land Information map didn't show that Paihia - Opuia Walkway, and the other map showed it as hugging the coast very closely, so I had inferred that no climbing would be required.

After a shower and change, we went out to eat. Number 6 was open, and we went in. I had a very tasty whiting in cream and white wine sauce, with garlic bread and half a litre of Bavarian weissbier. The proprietor, a German, came out to talk to us.

Next morning, the same bird was our alarm clock. After breakfast we headed for Waitangi, stopping to take a look at Te Tii (a complex including a Maori meeting house and looking rather like a school) and the Sugar Boat (once a restaurant and now for sale and looking very decrepit). We began the Waitangi trip with a coffee in the Waikokopu Café. We watched eels swimming in the pond, while a small boy fed the ducks under a sign saying "Please don't feed the ducks", and his family did nothing to restrain him, except for saying "No more" when he wanted another scone.

We paid the entrance fee to the site. (It is fenced off from the car park and the café; we found later that you can walk through it on the coastal path, but if so you are not supposed to stop and look at things.) We saw the ceremonial waka (war canoe), specially made from three kauri trees for the centenary of the treaty, and elaborately carved. Next was the Treaty House, actually the home of James Busby, the British resident from 1833 (the treaty was signed on the lawn in front of the house). He was sent from Sydney, as was his house (prefabricated of bluegum); the size of the house was cut down on the Governor's orders on the grounds of expense (he had only two bedrooms for his large and growing family), and he was given very little support, no troops or police, and expected to keep order with Kororareka (the "hell-hole of the Pacific") just across the bay and Maori settled densely around. The fact that he was so well thought of despite all this says a lot for him. He helped the new Governor, William Hobson, draft the treaty (presumably steering him away from what would be unacceptable to the Maori chiefs). One of the most revealing documents was his address to the chiefs on arrival, in which he explains that England used to



be as New Zealand is now, a patchwork of warring clans with no decent clothes or housing – but look at us now, you too can be like this if you accept our religion and civilisation! We saw the Whare Runga (meeting house) built adjacent to the Treaty House, and the ancient and huge camellia trees planted by Agnes Busby. Then we went back to the café for lunch.

After lunch we walked the trail to Haruru Falls. This was a very nice path, certainly the best maintained we've found in the Bay of Islands. Crossing the golf course, we went into a long stretch of native bush, alternating between fern trees at low level and the more common sort higher up the slope. At one point we were level with the top branches of a tree in which there were several cormorants' nests, and adults feeding juveniles. Then the path descended to a boardwalk through the mangroves. The whole mangrove forest was talking to us in clicks and pops. (According to the information board, these sounds are produced by snapping shrimps.) A mangrove swamp is as productive as high-quality farmland, but because the people who reap the rewards (the fishermen) are not the same as the owners of the land, the mangroves are under threat. The solitude, shapes and colours of mangroves have always appealed to me.



After a long low-lying section near the estuary, we climbed again and came out to the falls, broad rather than high but with a very impressive flow of water coming over.

I had decided to walk up to the Paihia to Kerikeri track and back along that, and persuaded Rosemary that it was little further and would be possible for her too. In fact, in spite of the trail being clearly shown on the map, the walk was entirely along the unsealed gravel road. There was not much traffic, and many of the cars slowed down to pass us, though not all did! It was a very pleasant country road, with numerous views over bay, inlets, mountains, and green farming country. There was some forestry by the roadside, but some native bush. We saw a red flowering gum, and a tree with pinnate leaves and lilac flowers shaped like bean flowers.



Coming back to the golf course, I wanted to take the coastal path, and again Rosemary came with me. At first there was no path at all, and we had to follow the edge of the golf course, abobe a ravine in which a bird with an astonishing metallic edge to its notes sang to us. Then a faint path began along the edge of the low cliffs, through old trees and flax, finally bringing us to the edge of the Treaty House lawn, past the war canoe, and to a boatyard, where we had to wend our way through as the path was nonexistent.

We ate at a Chinese restaurant and bought juice and fruit for breakfast on the

way home.

Next morning, it was raining steadily, and as we walked to the pier we could see that the waves were much bigger than they'd been the last couple of days. Only eleven passengers boarded the boat for the **Cream Trip**, and when the captain announced that we were almost certainly not going to be able to get to the Hole in the Rock because conditions were too bad, two of them left.



But it was a very good way to spend a wet day, in the hands of our captain Hugh, who gave us a very knowledgeable commentary, and his assistant Grace. Among other things, he gave us a sense of what we might have seen at different times of year: the red-flowering pohutukawa all around the bay at Christmas, and the seabirds nesting on the basalt Black Rocks in the summer.

In the morning, we cruised around many islands, doing mail and supplies drops at some of them. It was a little difficult to distinguish between islands with names like Moturoa, Moturua, and Motuarohia. The Land Information map appends "Island" to all these names, which given that "motu" means "island", is a bit like multiple versions of Torpenhow Hill. At most of the drops, a man (often accompanied by a dog, who was always given a biscuit) came to meet the boat and exchange mailbags or take the cartons; but one place had a bucket which could be hauled in by a rope, into which Grace put a newspaper (wrapped in plastic, I trust!).



The islands were mostly Government-owned parks, but some pieces were privately owned, sometimes by millionaires, in one case (Moturoa) by a co-operative who farmed it. (This island was close enough to the mainland to get its electricity by overhead cable, under which we sailed.) They were partly covered by native bush, and partly pasture (in some cases because they were being farmed, in others because sheep are used to keep the grass down until the area can be put back to bush). Rocky headlands, eroded by the sea to cracks, holes and caves, alternated with secluded beaches, one called Honeymoon Cove because at high tide there is only room for two people. Some of the coves held expensive houses: one man, unable to obtain permission to build his own jetty, had tunnelled through the headland so he could use his neighbour's jetty.

We saw several gannets, flying or sitting on the water – the captain even went back to show us one, and persuade it to take off – and later one dived on the other side of the boat so we didn't see it. There were also oystercatchers (both dark and pied) and various gulls, along with many cormorants, including a very impressive tree full of them.

The dash across the open sea from the northern to the southern islands was quite rough, and I think everyone understood then why we were not going to Cape Brett. We stopped for lunch at Zane Grey's resort, founded by the famous author of westerns for the marlin and shark fishing, and had excellent fresh fish and chips. The alternative was a walk up to a viewpoint, which I was glad not to have taken, when the rain came bucketing down halfway through lunch.

After lunch, we got to go into the yellow submersible used for viewing fish, and the captain brought a few fish to the observation windows by tipping fish food from a bucket. Then on with the voyage; the trip to the cape replaced by more pottering among the islands and mainland capes and bays. Gruesome stories of the massacre and cannibalism of the French captain Marion du Fresne and his crew by Maori – we learned that, before leaving, the survivors buried a bottle containing a document claiming New Zealand for France, which has never been found, and would not be valid since Cook beat them to it – and the killing of the Robertson family and others by the first Maori to be hanged under British law.

The captain explained that the voyage was called the Cream Trip because, as well as mail and groceries, the Fullers boat used to pick up cans of cream from the island farms and take them to Opuia to load on the train. He was in the middle of explaining to us that we had arrived at Cream Point, one of the pick-up points, when he spotted dolphins. He is not allowed to go out of his way looking for them, but if he finds them he is allowed to take the passengers among them. As we came closer, the dolphins put on an astonishing show. They were fishing, so groups of them would curve gracefully out of the water together; but once they had an audience, they came over and swam with the boat, and some leapt out of the water. There may have been fifty of them altogether, and we were in the thick of the pod for ten minutes before a dolphin cruise boat approached and we had to leave them to it. Swimming with them would not have been allowed since there was a baby in the pod, so we had as good a display as anyone could have done.

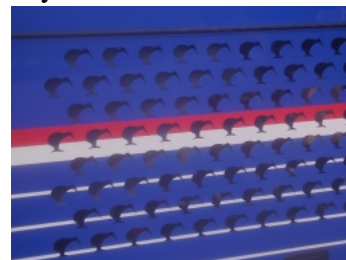


Then there was not much to do but to head home, past two places we visited in the last couple of days (Long Beach and Waitangi), and back to the motel for a nice cup of tea. We dined at Only Seafood; I had snapper in banana cream sauce, with a delicious fruity Gewurztraminer from Gisborne. The pudding was a bit of a let-down. New Zealand claims the invention of pavlova, but they really don't understand how to make it: a meringue filled with cream and floating in stewed berries doth not a pavlova make! No surprise then that Pavlova didn't make it to New Zealand. In their favour, they played Beatles songs throughout the whole meal, but so unobtrusively, and with such competition from the wind and rain outside, that sometimes it took me several bars to recognise the song. When I was

paying the bill, they were playing “Yellow Submarine”, which by association of ideas from today’s trip made Rosemary think that we had had this part of the tape before.

The next morning, the bird had added something to his song: after several descending fifths, there were a few other notes and then some harsher noises. I tried to see him but the bathroom window wouldn’t open far enough for me to look out. Later, we saw a tui swelling up as if to begin to sing, then heard the descending fifths; he was too far away to tell for sure. But even if he was, he might have just been mimicking another bird. The same song was coming from all over town. I guess it will just have to remain a mystery.

We checked out, took our luggage to the pier where we could leave it, and decided to walk up to the lookout. The map showed two paths, leaving from different streets. We tried one, only to find no path and a “Private Property” sign. As we walked back to try the other, it started to rain, and we just about gave up on it; but the rain stopped and we took the other path.



The path started along a swampy stream, partly on a boardwalk over the stream itself, and partly along its banks, with a couple of crossings. After the rain, the sun struggled out and gave the bush the feel of steamy rainforest, with lots of fern trees. After a while we began to climb; the air grew cooler, the vegetation changed, with an irregular pine-like tree I couldn’t identify predominating but with lots of celery pine and manuka, as well as lancewood (both juvenile and adult) and the occasional rimu and others, and the air was filled with fluting birdsong. Climbing higher, we had views inland to forested ranges and valleys, and finally a spectacular view over the bay, with sun shining intermittently on the sea as boats plied the water and hills rose behind hills. In the distance, the open ocean sparkled in the light.

Returning to town, we had a coffee, bought lunch at a supermarket, and sat on a seat in the sunshine behind the lovely old library building to eat it, then went to catch the bus.

10 Auckland

A big bus was waiting; it turned out to be ours, though not yet ready to board, so we had a short wait. But we got away expeditiously.

We left with blue sky and white clouds; the pastures was a surreal shade of bright green, with darker green of forests and mountains fading to blue in the distance. But while we had entered Northland to a wonderful view over land and

sea, this was denied us on leaving; a cloud shrouded the tops of the mountains and the road ascended into it. Over the summit, the cloud disappeared and we had good views over the more settled landscape of Auckland province.

Later, further and more ominous clouds came down on the hilltops. Coming into Auckland, these produced a spectacular chiaroscuro through which we travelled. The tall buildings of Auckland were wreathed in cloud, but the Sky Tower stood up above the cloud layer into the sunshine. We arrived at the bus station under the tower five minutes early.

Then we ran into a spot of bother. There was nobody to meet us, so we took a taxi to the Quadrant. I had a bit of a shock entering the lobby: it sported a pink motor scooter and fairly loud disco music, and nobody (including the manager and desk clerks) seemed to be over 25. When I tried to check in, it was clear that something was wrong. The clerk dithered for a while and then said he would just go and get the manager "to take your details". After some time the manager came and explained that, because of circumstances beyond their control, we were unable to stay in the Quadrant, but they had put us in their sister hotel, the Westin, near the docks. But the point of the Quadrant was so that I could walk to the University, I explained. Can I walk from this other hotel? No, it is impossible. But it is not far. How far? Twenty minutes' walk. We will get a taxi to take you to the hotel, and I will give you a voucher.

The taxi took a very long time to come. When it did, the driver helpfully tried to point out other hotels where we could stay. But we got there, and they did have a room for us (on the side away from the sea view).

First impressions were not good. The hotel had a laundry service. They charged four dollars for a handkerchief, and proportionately more for other garments. We were looking at a laundry bill of well over a hundred dollars, as opposed to less than five dollars in the various motels we have stayed with along the way. I looked up eating places in the Rough Guide and headed in the most likely direction. Apart from a huge Chinese restaurant under a car park, the first place we came to was a "Irish Pub", which had the traditional Irish dish Shepherd's Pie on offer, and didn't admit to selling New Zealand beer until we asked them outright. On the way we saw paving stones in which the shells in the concrete were still clearly visible.

The hotel had broadband (of course not cheap), so I read my email, thinking that maybe someone had sent me an urgent message while we were in the Bay of Islands. Not a thing.

My temper wasn't improved the following morning. The room looks out on ugly office blocks and a huge car park. The breakfast would have been OK for someone who simply wanted to tuck in and not eat again until next morning, but for reasonable humans it was far too expensive. They were also stingy with coffee. Also, breakfast is on a dockside disfigured by almost featureless apartments (which might actually have been better if they had been completely featureless).



Setting out on the most direct route to the University, it took us seven minutes to cross the first road – crossing directly was not permitted, one had to go round three sides of a square, one of which was broken into two stages, and the traffic lights were terribly slow. The park just beyond the crossing was fenced off from pedestrians with heavy-duty netting. Not a bird to be seen apart from ubiquitous sparrows. This is one of the ugliest, most pedestrian-unfriendly cities I have ever visited! I found later a sign which sums up the Aucklanders' view of pedestrians.



But at the University, things began to look up. We were given coffee, keys to an office, coffee, chocolate biscuits, and a computer account which actually allowed me to use the computer (unlike other places along the way). Garry Tee dropped in and presented me with a copy of the book of essays presented to Henry George Forder in 1970 (which Gaven Martin had shown me) and an OHP slide made from a scan of his portrait – a very nice gesture. The book is:

J. C. Butcher (ed.), *A Spectrum of Mathematics: Essays Presented to H. G. Forder*, Auckland and Oxford, 1971.

Marston Conder invited us to lunch. And I managed to find time to prepare today's talk.

During the morning, Sepideh Stewart (the occupant of the office we had appropriated) came by to collect some things. I had guessed from looking at the books that she worked in mathematical education; she has just submitted her thesis but hasn't been examined yet, but she said that she feels the need for more mathematical knowledge and is thinking of enrolling for some more maths.

Also, it was pointed out that in the *New Zealand Herald*, right under the easy sudoku, there was an advertisement for my public lecture! We couldn't steal the paper then since the mathematicians solve the sudoku and cryptic crossword over lunch and someone has to copy them; but I managed to make off with it in the afternoon.

Marston took us to lunch at a nice Japanese restaurant (run by Koreans, as apparently most of them are!), and then coffee in the students' union café (grandly known as the Relax Lounge), and then it was time for my talk. This was the one on “Cores, hulls, and synchronization”; as usual, too much material, but I think I did a fair job. There were 13 people in the audience, not bad for a specialist seminar. When we got to the common room, someone who had been there was explaining it to someone else who hadn't been.

After tea, Rosemary phoned Kathy Ruggiero, who had arranged an office for her, and went off to take possession of that office. On the way home we went a different way, to look for a laundrette we'd been told about. We started down through Albert Park, with some very fine Moreton Bay (and other) figs and pohutukawa trees, and then through the small streets and onto the waterfront near the ferry terminal, where we looked up the times for ferries to Rangitoto.

We ate in the Waterfront restaurant, recommended by the Rough Guide as cheap and good. I had very good fish (orange roughy) and chips, Monteith's, and a less good mango tiramisu (but very artistically presented, and including ice cream and fruit salad).

In the evening I had pleasure delving into the Forder book. According to L. M. Mine-Thompson, the vector differential operator is called “nabla” because William Rowan Hamilton, who introduced it, thought that the shape of the symbol he used to represent it resembled an Irish harp. Also, K. E. Bullen has this to say on the status of applied mathematics teaching:

In the applied mathematical textbooks current during my undergraduate days, the formal arguments were mostly tolerably sound (though often very irrelevant to current scientific progress). But their scientific philosophy was very often quite unsound and superficial, as witness the statement in one of them: “It is inconceivable that the original laws on which Mechanics is based could be erroneous.”

The next morning I was feeling a bit nauseous, and it had been raining hard. We decided to breakfast on instant coffee and a nut bar and get the ferry to Rangitoto. This turned out to be a good choice: the bad weather held off, I couldn't have eaten more, and there was plenty of interest on the island to keep the nausea at bay. When we left the ferry terminal, the summit was in cloud; it cleared to give us good views, but clouded up again when we were on the way back.



We started off through the Kowhai Grove and the Kidney Fern Walk. I was astonished at the amount and variety of vegetation which had established on an island vomited up by a volcano only six hundred years ago. The kowhai were

not in flower, but after the rain the whole place had a delightful freshness. We came out on the main track and started up to the summit. There were some lava fields, but almost everywhere the trees and shrubs had established themselves. We heard several birdcalls including an entirely new one, a rapid peeping on a note slowly descending by semitones.



The crater was an amazing sight: a perfectly formed cup, the trees carpeted in green (mostly pohutukawa – it must be an astonishing sight when they are in flower!) We walked around the rim of the crater and headed down again, seeing different things in the other direction. In one place there was an English scene: a clearing with acorns on the ground (one of the trees was, I think, a Turkish oak), lots of spotted red toadstools, and a blackbird!

Back at the shore, we looked at the mangroves establishing themselves on virtually bare lava, and smelt the astonishing honey-like smell of their flowers, then had time to look at some of the “historic baches” before the ferry arrived.

On the way out, we’d seen a container ship being loaded in the port; on the way back, it was leaving, and we had a fairly close encounter.

Back in the city, we bought sandwiches and went back to the hotel. I was over the worst of the sick feeling but was exhausted, and nearly fell asleep over my sandwich. After that we gathered up the laundry and headed back to the laundrette; Rosemary stayed to do the washing while I headed up to the University. I must say that the streets in this part of town are much nicer, but I don’t withdraw my comment about the hostility of the traffic planners to pedestrians, which is a constant irritant here.

I read my email, had a cup of coffee and chatted with Garry Tee about the rare manuscripts in the University of Otago library and about the eruptions of Rangitoto. He said that the first eruption was in about 1370, but there had been a hiccup in about 1700. This explained the earlier arguments about the age of the island: botanists had found vegetable matter covered with lava. Then I found Eamonn, and got instructions about various things including a look at the lecture rooms. (The public lecture has been scheduled in a fairly small room, with the option of switching to a larger room at short notice if numbers seem to warrant it.)

Back to the hotel, by a route which seems to minimise the aggro from pedestrian lights. I looked up the bird in both books without success: their descriptions of birds’ calls is very imprecise, and for one book, only forest birds’ calls are given.

We ate at the Euro, on the pier, another guidebook recommendation. It was as well that my appetite was returning but not back to normal: the food was delicious but the portions were tiny. I had the dish mentioned in the guidebook, rotisserie chicken with mash and the celebrated peanut slaw, with a glass of Central Otago

pinot noir rose. After dinner we walked round the pier and back to the hotel.

Breakfast next morning at the Natural Café: unlike the hotel, cheap and exceedingly friendly! They were also distinguished by the background music, an excellent selection of o-t-t 50s and early 60s rock'n'roll. ("Going to the Chapel" seemed to be one of their big favourites.) They had copies of the free paper, the Epoch Times, which I skimmed over breakfast. An excellent read, with some detail on major news stories such as the Chinese reaction to the Olympic protests. Slightly disturbing was a vox pop item in which eleven New Zealanders were asked what should be done to make New Zealand greener. One said "Reduce petrol prices".

In to work, read email, coffee in the common room and chat with Garry, coffee in the Students Union and chat with Eamonn, off to **Radio New Zealand** where they gave me yet more coffee, and the receptionist jokingly asked me if I wanted to go on air and talk about the Auckland Chamber Orchestra, since the interviewee hadn't shown up. So I was pretty fired up when I went in for the interview. No formalities, just a chair, headphones and a microphone, and Kim Hill came on with the minimum of preamble.



Some people have told me that she is very fierce, but in fact we had a very good chat! We talked about working with Paul Erdős, and the Cameron-Erdős conjecture (after which she asked the only provocative question: "What use is it?"), whether mathematicians really think differently from other people, whether I had been mathematically minded from an early age, and of course quite a bit about sudoku. I came out of the room and said to the receptionist "That was fun!". She said, "That's not what they usually say!"

I had a good lunch at the Students Union (salmon and avocado bagel, passion-fruit frappé, and a banana), and went back to my office. Rosemary came to sit and work on her talk, then Marston and Eamonn came to take us to coffee (I decided I'd had enough and went for green tea), and then back to the office to work some more. The weather had been very changeable, and one of the changes was wind; I found that the wind had blown over a nice vase with two roses in it (fortunately the vase was undamaged).

It came time for the public lecture. Eamonn and I went down to check the technology in the lecture rooms. (He had advertised a room with a capacity of about 100, and also booked the much larger room next door in case the numbers warranted it). Unfortunately both rooms were in use, so we were unable to do much. The refreshments appeared, in a big room which used to be a physics lab and is now a maths students common room and resource centre (why can't we have one of these?).

As the time for the talk approached, it was clear that there were too many people for the smaller room, so we went for the other option. (The event had been very well advertised; as well as the notice in the *New Zealand Herald*, there were posters all over the place.) Eamonn estimated that there were about 150 people present. They seemed to enjoy the talk, and once the ice was broken there were a lot of questions, including one from Jack Webb, an amateur who had worked out the number of completed Sudokus and got a different answer from the generally accepted value.

Wednesday 30th April 2008 • 5.30 pm Refreshments • 6 pm Lecture

Sudoku: Is it Mathematics?
~ Peter Cameron ~

Like them or loathe them, Sudoku puzzles are everywhere. But are they mathematics, or are they just "logic and reasoning" as one national British newspaper suggested?

All the ingredients of Sudoku had been developed by mathematical scientists long before the puzzle made its first official appearance in 1979. This lecture will look at the mathematical origins of Sudoku and at a variant called "symmetric Sudoku" that has close links with finite geometry and error-correcting codes.

A highly entertaining presenter and expert in a wide range of mathematical fields, Peter Cameron was one of the London Mathematical Society's Popular Lecturers in 2001, and has received various awards, including the Euler Medal. Peter is the 2006 Forder Lecturer, a distinguished Fellowship awarded by the London Mathematical Society every two years to visit and lecture at New Zealand universities.

SLTI Lecture Theatre • Ground Floor Building 303 • 38 Princes Street (by Albert Park)

Then off to dinner at the O'Connell Street Bistro. Eamonn was a bit apprehensive, having had a bad experience with the waiters there recently, but in fact all the waiters did was to refuse to allow us to pour ourselves any drinks, and to advise me against the banana tatin which "wasn't up to scratch today". The food I did have (kangaroo loin, john dory, and apple and feijoa tart) was excellent, and we all had a very pleasant evening. Gaven and Dianne were there – so the trip begins to round itself out. I whistled the song of the bird we heard on Rangitoto, and Dianne identified it as a grey warbler.

Next morning the rain was tipping down, but we managed to get to the Natural Café and back mostly between showers, and after working in the hotel room for a while, I walked in to the University, also dodging the showers. A morning's work, coffee with Eamonn and Marston, lunch at the Student Union café in a very brief interval of sunlight, a bit more work, then it was time for the very last official function of the trip, a lecture on the Random Graph.

About 45 people turned up, which Eamonn said is high for a departmental colloquium. The talk went well, but I must have been even slower than previously, since I only got to mention Cayley graphs in the last minute. I think Marston might have liked more on this.

Afterwards, juice, muffins, and lots of fresh fruit appeared in the common room, where we stayed for a while. Marston told me about Rosemary's talk, in which she had told the bio-informatics people to go to the Mathematics Department for lists of symmetric graphs! John Butcher came to my office to thank me for the talk yesterday and ended up admiring the white toy and then showing me his book on differential equations, where the tree diagrams are illustrated with New Zealand trees (including the pohutukawa) and the flows by outline pictures of New Zealand birds (including the kiwi), with a little natural history in each case.

Next morning, after breakfast, I set off on the Coast-to-Coast walk. The guide-book claimed that it is 26km, and I had said I would be back at the University at 3; so I decided that if I arrived by 2 I would look for a bus, otherwise take a taxi. In the event it was only 16km, and I arrived at 12, so I walked back again. I can say I have walked across New Zealand and back in a day!

I started off past the tourist information, or i-site, on Princes Quay, where I stopped for a walking leaflet of Auckland, including the Coast-to-Coast. After the irritation of the downtown traffic lights, the path climbed to the northern end of Princes Street. There was a rainbow over the street, preceding a very light shower of rain. Then the path went through the University and across the motorway into the Auckland Domain. This provided more pleasant walking: as well as the ubiquitous sparrows there were pigeons and rats, but the trees were more varied: a palm grove, a path by a little creek, a bottle tree and a silky oak. A couple of waymarks appeared, and led me astray, but I found my way to the correct exit.

Another stretch of road brought me to the first volcano, Maungawhau (Mt Eden). From the shoulder of the mountain, both the Pacific and the Tasman Sea (more accurately, Waitemata and Manukau harbours) were in view, not quite within a single shot. From the summit, several more volcanoes were visible, as well as mountain ranges to the west and south-east. Cows blocked my path near the top but gave way without too much trouble.



The crater was quite astonishing: much smaller than Rangitoto, and covered in grass rather than trees, but a perfectly formed cup, with terracing round the sides, showing up well in the light of the sun just peeping over the crater rim, which cast the ridges into sharp relief. The crater was full of swallows on the wing. I also heard what I am sure was a tui, singing descending fifths like our alarm clock in Paihia, but in a much harsher tone than the birds we heard there. So I think I must conclude that they were also tui.



Some more streets, past some old houses with fine verandahs having elaborate overhanging roots, and what used to be the Auckland College of Education (now the Education Faculty of the University), brought me to the start of Cornwall Domain, given to the city by John Logan Campbell, whose sins are presumably washed away by now by fountains playing on his statue. The park has an astonishing collection of mature trees, full of birds singing like mad. In the waterfall of birdsong I heard, among other things, the song of the grey warbler we had heard on Rangitoto. (On the way back, starlings made a great noise which kept abruptly starting and stopping.)

Past the restaurant, I came out of this park into One Tree Hill Domain around the second volcano, Maungakiekie. A path led off the road and up through a big olive orchard to the remains of a pa (hill fort), considerably more elaborate than a typical British hill fort. The hill is surmounted, not by a single tree, but by a hundred-foot obelisk. I didn't see the crater on the way out, but saw it coming back: it is quite a bit larger than the Maungawhau crater, but one side has eroded away, so it looks like a huge terraced amphitheatre. The southern mountains were even clearer from the top.



Then down the mountain and on the road through the town centre of Onehunga and past Jellicoe Park (where another brief shower came on and passed) to Onehunga Lagoon, which is connected to Manukau Harbour but separated from it by a very busy road. This was journey's end.

On the way back I didn't go to the two summits, just over the shoulders of the mountains. In the Cornwall domain the rain started sheeting down, but I had just got so far as crossing the street to a shelter when it abruptly stopped. After the Auckland domain, I diverted slightly through the University to get to the mathematics department (with a short lunch stop at the café). As I arrived at my office, I was dragged off to an impromptu party in the common room, celebrating several things (none of which became completely clear to me).

At five, we adjourned to the Staff Club, which is in the former Governor's Residence, a wooden building cunningly made to look as if it is of stone. Then we went off to eat with Marston and family and Isobel, at the Japanese sushi bar. Seven of us around a very small table were rather cramped, but we had a very friendly and congenial meal.

Next morning, after a rather late start, we decided to take the ferry to Waiheke Island. We had a long wait for the next ferry, so bought a newspaper and had coffee while looking for information about the London election results. (They had even less than the BBC had had yesterday afternoon). By 11 we were on the way.

Waiheke is quite a bit larger than Rangitoto, and seems to be a cross between a seaside resort and an Auckland commuter suburb, with a good sideline in wine-growing. (The map showed nineteen vineyards, but that was an underestimate, as we found.) On arrival, lots of cars and buses set off along the road to Oneroa, the main (indeed only) town on the island, but there was also a clearly-marked path through a nature reserve, which we took. (Right until the end, we found the waymarking on the island far better than any we have found elsewhere.)

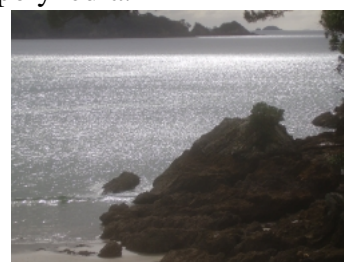
There was actually a choice of several paths through the nature reserve; we choose the lowest path, through wetlands. The vegetation was flax, manuka and cabbage-trees, much of the manuka still in flower. As soon as we were out of the

nature reserve, we came on non-native plants, gorse and morning glory.

Almost the first building in the town was the tourist information centre, from which we got a walking map, the equivalent of the one for Auckland from the day before. Then we walked down to the beach, where the sea was flat and the tide very low, and there were many interestingly-coloured shells. We decided to walk along the beach, scrambling over the rocks of the headland which bisects it. Some of these rocks were cut by planes in several directions, appearing to form a tessellation by polyhedra.



At the end of the beach was a small shop where we got sandwiches, carrot cake, and ginger beer, and climbed the cliffs to eat them and look at the view out to sea, where sunlight sparkled on the distant sea beyond some nearby islands. (Looking back later we could see that we were virtually in the front garden of a house on the cliffs.)



Then we decided to walk back to the ferry along the path going round the north-west tip of the island. So back down the cliffs, round the back of the point (past the dual-use Catholic and Anglican church built on a rock, dedicated to St Peter by the Catholics), back along the beach, and up the other end. At the top, overlooking the beach, two tui sitting in two flame trees in full flower gave us a duet until a third came and chased one of them away.

We went along the road and turned off down a track, which very soon passed the University of Auckland Wine Science Department, an extensive vineyard not marked on the map, and up to a point which gave a lovely view of Double U bay (like Oneroa Bay, bisected by a rocky point) and beyond to Coromandel Peninsula. From there the path followed the clifftops and then steeply down to Island Bay, full of rocks and tiny coves. We passed a pohutukawa tree which still had dead flowerheads on it, and a strange plant somewhat like a tomato: yellow-green fruit like small tomatoes, stems with thorns like a rose, and substantial thorns in the middle of the dark green leaves. Rosemary didn't enjoy this bit, though I found it the best of all, with views of the sun on the sea beyond the islands to the north-west. When we finally reached a tiny inlet in the bay, two boys on mountain bikes with a very large dog came down behind us and shattered the peace of the bay.

The next section was a mown path in a veritable garden of flax, which took us across to Owhanake Bay. Rather than subject Rosemary to more cliff paths, I suggested a short cut back to the ferry. This worked fine and brought us to the end of the beach in Matiatia Bay, just a few hundred metres from the ferry jetty, with the 4pm ferry sitting there waiting for us.



The map clearly showed a path along a beach, but after clambering over one headland through a couple of private gardens, and seeing three kingfishers on a wire, we were faced with another impenetrable headland and no way around. We climbed up a track through another garden, through nearly impenetrable scrub, past a garage of a holiday house shut up for the winter, up their drive, and along a road, thinking we would have to go most of the way back to Oneroa. But just then we passed a trail leading down to the right. It took us down to Matiatia, and by running along the jetty we were able to leap onto the ferry just before it departed.

On the way back, we had a replay of the last trip: a loaded container ship heading out of harbour came very close to us as we rounded the point for Devonport.

Catching this ferry, an hour earlier than we had planned, gave us plenty of time to have a cup of tea and a bath before dinner. It would have been a bit tight otherwise. Then we set off for the last unofficial engagement of the trip, dinner with Eamonn and Alastair.

It was about a forty-minute walk; the map hadn't shown that the route I chose involved going up two substantial hills and down one. This is typical for Auckland! Finally we found our way to the tower block, and found that the numbers only went to the tenth floor; but there was a separate board on the other side of the door giving the eleventh-floor occupants. Soon we were inside, up in the lift, and into the apartment, just beating Gaven and Dianne, the other dinner guests.

It was a splendid evening; good food, excellent wine, and very congenial conversation, all with a fine view over the lighted city. Dianne had brought some figs to go with the cheese, but as we didn't finish them, she gave them to us for next morning's breakfast or lunch. We left with hopes to meet up in various combinations in December or January.

We learned that the policy-less clown Boris Johnson has become Mayor of London, and also that my interview with Kim Hill hadn't been broadcast today (but should be on the website next week).

11 ... and home

Gaven and Dianne gave us a lift back to the hotel. At Rosemary's suggestion, we asked at the desk about the checkout time, and they gave us an extra hour, until mid-day, so there was no rush the next morning. They also offered to store our luggage and to let us freshen up before setting off. So they have more than redeemed themselves from the cloudy circumstances of our arrival.

We went out for breakfast but found the Natural Café; closed on Sundays. So we bought a carton of juice and breakfasted on this, the figs, and leftover fruit and nut bars, then packed in plenty of time for the delayed checkout time, and left our bags at the hotel.

The rain came down quite heavily for most of the day, so we abandoned our plan to go anywhere, and decided to look at the Maritime Museum instead, after having some good chowder for lunch in O'Hagans. There were many interesting items in the Maritime Museum, including a replica of a 50s bach and local shop. I learned that the plural of "datum" (in the context of GPS) is "datums", and connected with my past when I saw a lifebuoy from the Shaw Saville Line's ship *Southern Cross* on display. There was also a letter from someone who had emigrated second class on Shaw Saville Line and was warning all his friends and relations against this. I would have liked some more information on how the Polynesians navigated between islands.

Then we went back to the hotel, sat in the lounge, and spent a while doing puzzles from one of their Sunday papers, until it was time to go. Good service: a hotel employee brought our bags out and loaded them into the taxi for us. The taxi driver was a voluble Cockney: though he had been in New Zealand for forty years, his accent hadn't changed a bit. He had been born in the Bancroft Road hospital and had been at school with the Krays. His brother-in-law managed such luminaries as Plant and Page; he had built up a fuel tanker business in New Zealand and sold it for enough to put his children through university and keep him comfortable, driving a taxi to keep his hand in.

With the taxi fare and a sandwich at the airport, we got on the plane with virtually no New Zealand currency left. I listened to music while they fed us – Pink Floyd, Led Zeppelin – and then had quite a good sleep until close to Hong Kong. The dawning light showed huge ominous black clouds in the eastern sky (we were not next to the window and were over the wing so the view was a bit restricted), but when the Pacific sunrise came it illuminated the internal structure of the clouds and showed fantastic shapes and mythological countries.

At Hong Kong, there was mist over the hills. I walked around and discovered what the Chinese do with Tibetan protestors: they boil them down and produce "Women's Pure Essence" and "Men's Pure Essence" to sell to the tourists. The remains are recycled as "Man Bags" and sold to the tourists at a different shop.

There was another eee-pc in use at the departure gate. The owners were a young Chinese couple with perfect English midland accents.

There was a delay of two and a quarter hours leaving Hong Kong. The ground staff told us nothing, but when we boarded the plane the pilot told us that one of the engines had been vibrating on the way from Auckland, and they had to fix it. Then we had to wait a long time in the queue for takeoff. Through the long daylight, I was in the aisle seat, even further from the window, with no view at all. Fortunately the man in the window seat left the shutter up, so it felt like daytime. I got through the flight listening to music (Bob Dylan, Beatles, Rolling Stones, Philip Glass, Brodsky Quartet, Alison Krauss and Robert Plant), and the trip passed surprisingly quickly.

We were out of the airport quite expeditiously and home on the tube. There we found that a leak in the washing machine plumbing had soaked the carpet and various other things. But that's another story.