

15 OVERSEAS 1974-76

Although we had quite frequent holiday visits to France and Spain during post-war years I had very limited overseas professional contact. There were visits to meetings of the International Carboniferous Congress in Aachen and Paris and one brief visit to the Ruhr Coalfield, all arising from the importance of coal mining at the time. By and large, however, in post-war years we rightly regarded the Geological Survey of Great Britain (GSGB) as being in a lead position, with not much to learn from abroad.

In 1960 I was posted to Scotland, and by the mid-1960s was beginning to become heavily involved in the entirely new sphere of offshore geology. It was fortuitous that by the early to mid 1970s a favourable financial position developed, to the extent that marine survey was able to expand rapidly. By the same token a good deal of foreign travel became possible by senior staff for overseas liaison purposes. Kingsley Dunham, who was Director during these years of 'affluence' took full advantage of the travel possibilities, and in fact he was reported (via Margaret Dunham and my Mother, who were in cahoots) to take pride in being called the 'Travelling Director'. Personally I never heard those words used, but he did get round to visiting most of the Overseas Division field geologists in their mapping areas

Dunham several times suggested I should put together a proposal for myself to visit offshore workers elsewhere to see what ideas could be picked up. He particularly mentioned looking at offshore carbonate production for cement manufacture in Iceland. The truth is that I was not all that keen to go, partly because our own survey work took me away from home unduly frequently, and partly because all the indications were still that we did not have much to learn from overseas geological surveys – especially in respect of work on the continental shelf. This happy position arose from the substantial funding we were receiving as a result of a combination of North Sea developments and a progressive government attitude.

However, as the seventies proceeded it became apparent that one area where we could learn was in regard to curation of records and samples from petroleum wells, of which North Americans geological surveys then had much more experience than the Brits, albeit onshore rather than offshore. So it was finally agreed that I would make a North American tour during 1974.

The Australian visit of 1976 was by virtue of my attending the International Geological Congress in Sydney as Assistant Director and presenter of a paper, and the Vancouver visit of the same year was by invitation of the Canadians to give some lectures on offshore methods. I was accompanied by Lucette on both of the 1976 visits, but that of 1974 was designed as serious work with a minimal social element.

15(a) NORTH AMERICA JUNE 1974

The 1974 travel programme was in fact quite a rush around:

Wednesday 5 June	Edinburgh	Prestwich
	Prestwich	Halifax
Friday 7 June	Halifax	Charlottstown
	Charlottstown	Montreal

	Montreal	Ottawa
Monday 10 June	Ottawa	Toronto
	Toronto	Calgary
Thursday 13 June	Calgary	Vancouver
	Vancouver	San Francisco
Friday 14 June	San Francisco	Los Angeles
	Los Angeles	San Diego
Wednesday 19 June	San Diego	Los Angeles
	Los Angeles	Houston
Friday 21 June	Houston	Corpus Christi
Saturday 22 June	Corpus Christi	Houston
Sunday 23 June	Houston	Atlanta
	Atlanta	Washington
Monday 24 June	Washington	Boston
Thursday 28 June	New York	London
Friday 29 June	London	Edinburgh

On Wed 5th I first took Lucette to catch the Edinburgh to London bus en route to Welwyn Garden City, then myself flew Turnhouse to Prestwich. Prestwich I recorded as ‘acres of empty modernity ... all very super clean and super efficient, and the telephones all seem to work (contrast to my recent experiences at Leith Docks where most were vandalised) ... certainly a quiet relaxing place.’

At Prestwich I boarded an Air Canada DC8 flight to Halifax, Nova Scotia, via Gander in Newfoundland. On departure there was a good view of Islay – “Sweeping empty pale yellow beaches and knobbly dark rocky crags. Clear clear blue water and white breakers to the west. “

Prestwich to Gander is 1900 Nautical miles. The Newfoundland coast I recorded as “brown and dull yellow, with thousands of irregular lakes of all shapes and sizes. They look frozen, but the silken sheen is possibly just a different sort of rippling. Small elongated patches of snow pick out the geological features of a very flat looking land. Probably there is 25-33% lake and about the same proportion of bare rock. Of the woodland, large areas are still brown and leafless; other large areas are of dull green conifers.“

Gander was 3.5 hours behind BST, and with a temperature of 70 °F. We were told Gander was having its summer. As we descended “the dull green gradually changed to graceful Christmas trees, and the brown to leafless scrub and brown-green grassland. Lots of fallen grey tree trunks. The airport is bordered by a long lake, but by and large the airport context was bleak and lunar.”

First impressions of the Gander terminal were, however, favourable. “Large complex colourful mural and bird sculpture in transit lounge, also lots of plants. Customs take themselves rather seriously. Yellow hat bands much favoured by officials. Canadian Mounted Police in chocolate brown dress jackets and Sam Browns.. Sweet canned music everywhere. “

It was 4hrs 20mins flying time Prestwich to Gander, and 1hr 25mins Gander to Halifax. “The coast of SW Newfoundland is smoothed elevated plateau deeply cut by

fjords to which it falls by rocky cliffs. Much bare rock, and several prominent E-W joints visible from 28,000ft. Roads and power lines are rare, and no signs of habitation.

“Halifax airport is set in flat terrain with a few rock ridges. Vegetation low scrub/woodland, mostly coniferous, with winding dirt roads going nowhere but lined with lumber. Farther north are green fields and more roads. The airport is 20 miles from Dartmouth and 25 from Halifax, but being quite large has a regular 30minute bus service. I stayed at the Holiday Inn, where the bus stops on request. “

Next day, Thursday 6th June, I made my first planned visit, which was to the Atlantic Geoscience Centre (AGC) at the Bedford Institute of Oceanography in Halifax., located in a large isolated blue building facing the inner harbour. About five research ships were tied up nearby, including the white-painted ‘Hudson’, their largest vessel.

One of the sights to which I was treated from the windows of the Bedford Institute was a bush fire, being tackled by four Catalina flying boats, each scooping up water to dump on the flames.

AGC, a part of the Canadian Geological Survey, had 71 staff and a complex organisation including a Shelf Geology Group under Lew King, my main contact. A shelf drilling programme similar to the one being run by IGS was at the planning stage. An Eastern Petroleum Geology Group liased with commercial petroleum exploration, although up to 1974 no commercial finds had been made offshore. Basically AGC was doing for Eastern Canadian waters much the same job as IGS for the UK Shelf, including development of instrumentation, curation of drill material etc The difference was that the Canadian approach was much more marine oriented than the British, which was essentially geologically oriented. I was inclined to be envious, but rather suspect that the Brits got it right.

In the evening of this second day in Halifax I was invited to the house of, Lew King and his wife Sally. “Greying dark haired American from Washington. Six children (2 boys, 4 girls) aged 12 to 18. House split level and open plan, half clad in hand cut cedar slates. A sundeck on top floor built by Lew, who is now building a semi-subterranean fruit store on the other side. Terraced grass garden backing onto birch woods sloping down to a lake. The house full of Impressionist reproductions and solid wood furniture, a copy of Kenneth Clark’s ‘Civilisation’ on the table. I was offered rye and ginger wine. Impressive set up. “

Sally King remarked, ‘Developers in Canada bulldoze off the trees, remove the topsoil and flatten it, then say it is ready for people. It is because the wilderness was traditionally the enemy of the early settlers.’

My third and final day in Halifax (Friday 7th June) dawned warm and sunny, with a pleasant light breeze. I was picked up at Holiday Inn by Lew King and taken with Dr Loncarevic (Director of AGC) to a lecture on the Law of the Sea at Dalhousie University, presented by a Dr Pardow. Dr Pardow was a former adviser to the government of Malta. The lecture was read, and I described it as an exercise in “uninspired idealism. “

On the way to the lecture Lew King took me through downtown Halifax. The harbour mouth is commanded by a citadel on a grassy drumlin, built in 1745. St Mary's Church is the oldest Protestant church in Nova Scotia – made of white painted wood. Dalhousie University is mostly of rough blocks of rather nice Lower Palaeozoic quartzite, but the Science Block is of unashamed concrete inside and out.

After the lecture, Lew King and Brian Maclean treated me to lunch at a pleasant wooden pub called 'County Gate'. They paid for both my lunches in Halifax (the first was in their canteen on the 6th) and were generally overwhelming with their hospitality.

In Halifax I became a habitu  of Zellars (2 visits) where I acquired food, and a check shirt for \$7.

In late afternoon of Friday 7th June I departed Halifax for Ottawa, travelling per Eastern Provincial Boeing 737 to Montreal via Charlottetown, then changing to an Air Canada DC9 flight to Ottawa. Near Halifax wide firebreaks in the forest were in evidence, and houses backing onto lakes; a dual carriageway road from town to airport. The Minas Basin full of brown muddy water opening westwards to a steel blue sea with the sun reflecting from it. On the south side of the Northumberland Strait green rectangular fields were eating into the forest. Looking into the sun here, the lightly rippled sea looked greenish black with a white sheen.

On the flight to Charlottetown, Jonathan, a small boy next to me, was wondering whether or not to be a pest, but I was impressed by the genuine friendly smiles provided by the Eastern Provincial hostesses to one and all. The plane specialised in canned music of a marching type, including 'Puppet on a String'. Prince Edward Island is low and glacially sculpted, made up of gently dipping red sand rocks and red beaches. Unlike the hard-rock mainland, it is mostly cultivated, with neat rectangular red and green fields separated by hedges of rows of conifers. Looks prosperous – Prince Edward Island is a Province, with its own Premier. Charlottetown had a small airport like those on Scottish islands. Houses are neat wooden villas each in its own green plot. All very rectangular.

We departed from Charlottetown thankfully minus Jonathan but with a complimentary copy of 'The Evening Patriot'.

A good view of Chignecto Bay, long and broad, with a bright brown river flowing into it and - to the south-west - the Bay of Fundy beyond, then the coast of Nova Scotia. We then flew over spectacular flooded river valleys with almond shaped marshy islands. Strip-mining beside one of the valleys was leaving behind a ridge and furrow topography. There were hamlets and cultivation along the rivers, forest behind.

Near Montreal were long geometrical cultivated strips, neglected and semi-overgrown near the geometrical suburbs. The St Lawrence, wide to the north east, suddenly narrows into rapids. Montreal airport is located on the north side of a large water body, part of a complicated branching system.

The airport is a huge white complex with covered access through numerous channels – moving walkways run below the tarmac. In hot and rather sticky conditions I transferred to my Air Canada DC9. Free copy of Montreal Star. French comes first in airport announcements.

The River Ottawa broad and seems to be trying to be a lake. It has numerous semi-submerged, tree-covered bars.

My contacts in Ottawa were with Dr McLaren, Director of the Canadian Survey, and Dr Hobson, Coordinator of the Polar Continental Shelf Project. The main point made by Dr McLaren was the importance for political reasons of getting the names of new operational geological units correct. He instanced the ‘Atlantic Geoscience Centre’, the ‘Eastern Petroleum Group’, the ‘Institute of Sedimentary and Petroleum Geology’, and the ‘Institute of Terraine Sciences’. All these names were chosen recently to maximise political approval and hence funding potential. The Geological Survey of Canada head office is not only handsome, but special in that it incorporates rock outcrops butting against the road below its frontage. It is a pity that the designers of Murchison House did not have a look at this building.

The reason for my visit to Dr Hobson was our joint interest in geological submersibles, but his main project at the time turned out to be a 40-ft, three-man submersible called Narwhal II, being built for operation below ice and involving costs somewhat beyond the scope of UK thinking. The Polar Institute is primarily a logistic centre, for which it has eight aircraft.

Ottawa is full of trees and grassy spaces, and it was tulip time when I was there, although some varieties were over. Parliament building has a clock tower and red clad mounties; it is set in a spacious grassy area.

Holiday Inn, my hotel, had a rather nice ragged rope-type tapestry on the ground floor, no 13th floor, and a rotating restaurant at the top. A complete rotation takes 1 hour 35 minutes. I was impressed by the fatness of the spiders outside the glass of the restaurant. Local food includes syrop on bacon and mushrooms for breakfast. The Ottawa River is filled with parked logs held in booms whilst awaiting attention. They bypass the rapids in the river through a sort of log canal.

Ottawa airport is not ultra-modern, and nothing like the size of Montreal, but very pleasant. It is L-shaped, with departures involving walking across the tarmac from the point of the L, and a viewing balcony above it.

I departed from Ottawa late on the afternoon of Monday 10 June, in hot sunshine, 86^oF, although the weather during the bulk of my visit had been hot and sultry but not very sunny. First I had a 1 hr flight to Toronto, then a 3hr 50 min flight to Calgary, both per Air Canada. Square road layouts were much in evidence as we approached Toronto, with numerous efficient looking warehouses with containers parked outside.

Toronto Airport comprises a huge long corridor-like building with coloured open lounges by each exit gate. We travelled from plane to airport in a ‘plane mate’, which is a large slow bus with a self elevating mechanism enabling it to latch on first with the plane, then with the airport building.

The long flight to Calgary was notable in the little I saw of the ground, although the pilot informed us when we passed an invisible Winnipeg and an invisible Regina, both to our left. From 35,000ft I caught occasional glimpses of oblong fields of various shades of brown and dark green, sometimes ending abruptly against large patches of apparently treeless wilderness. There were occasional rows of bushy trees along field boundaries and streams, and a rectangular road pattern. As we approached Calgary there were occasional large muddy lakes and some of the fields seemed to have irregular ponds in them.

Calgary airport was much the same as Ottawa, but probably a good deal older, with painted wood walls in colour sectors, and a metal lattice roof. Here, though, there were at least some sub-tarmac walkways. On arrival I took the airport 'limousine', a slightly ramshackle bus on which the driver collected the fare of \$2.40 to my hotel, Holiday Inn, before we set off.

Calgary is a clean square town with straight roads vanishing into greenery in the distance. Jagged snow-clad Rockies about 50miles away are always on the horizon. The town looks opulent. Many new multi-story buildings with a not unattractive finish and modern abstract sculptures in forecourts. I could see no poor people nor poor housing – the nearest candidates were the road-sweepers. Suburban houses are trim detached bungalows painted bright colours and mostly constructed of wood or harling on wood. Large smooth cars glide around gracefully and not too fast. The climate is stated to be dry, not too cold in winter and snow does not lie all the time. This year spring was late. There are masses of dandelions everywhere, particularly along motorways.

I am told that most locals have weekend holiday cottages in the mountains. Judging by the occasional large oil company office, most of the prosperity must be built on oil. There is a pedestrian precinct currently being organised in the centre, and several groups of 'flower children' sitting around here. There is also a large red rotating restaurant on a lighthouse-like stalk – look like an expensive construction just for a restaurant. There is also a complicated concrete planetarium.

My standard breakfast at Holiday Inn was two muffins and butter, black coffee, orange juice and a glass of iced water. Price \$1.10. Sweet canned music, soft light, waitresses in yellow rushing around periodically muttering 'everything is beautiful' or 'I love you'. Another standard event at the Holiday Inn was my evening swim in the hotel pool.

I had three nights and two very full days in Calgary. Tuesday 11th June I spent with the Energy Resources Conservation Board of Alberta, the morning at their core store and the afternoon at their office; Wednesday 12th June I spent at the Institute of Sedimentary and Petroleum Geology of the Canadian Geological Survey.

At the time the ISPG had a staff of around 75, one key activity being theoretical resource evaluation and advice at the federal level. The ERCB, on the other hand, was primarily concerned with the recording of commercial drilling and other geological/geophysical data for Alberta. Alberta was producing daily 1.6×10^6 barrels of oil, 5.4×10^9 ft³ of gas and 10.5×10^6 tons of coal, the bulk of the petroleum coming from Permian reefs. A notice on the wall of the ERCB Records Office stated, 'If you

can keep your head in the midst of all this confusion you don't understand the situation.'

The ERCB was in fact largely concerned with evaluation of energy resources from well records, fitting its work into the framework provided by a large atlas entitled 'Future Petroleum Provinces of Canada', produced by the Canadian Society of Petroleum Geologists. The core store of the ERCB was a huge and methodically organised undertaking efficiently curating and making available a great deal of material. Charges were made for access, largely to 'discourage retired geologists'.

The ISPG, under Dr DF Stott, came across as an elite and well respected group, concerned with the whole of the sedimentary area between the Rockies and the Canadian Shield (including the Arctic islands), very largely from the energy point of view. A senior member of staff was R McCrossan, principal author of the atlas referred to above. In view of the imminence of the IGS Scotland move to Murchison House, I was particularly impressed by the gleaming cleanliness of the ISPG buildings, thanks to the oversight of a zealous supervisor.

The sun shone for the whole of my stay in Calgary and the temperature got to 85°F, but was not oppressive. On Thursday 13th June I travelled early from Calgary to Vancouver, arriving there too in bright sunshine. The airport at Calgary was notable for the huge masses of dandelions in flower on earthworks close to the runway. Most of the flight was over the Rockies – a very broad mountain belt, the peaks and ridges capped with snow over a wide swathe to the east and a narrower one to the west, with a snow free area of lower mountains between. In the east the geological structure is clear, with ridges of dipping strata separated by straight U-shaped valleys, often broad and sometimes with rivers and roads. Much tree cover in the valleys. Then there is a zone of confused snow-clad summits without clear valley directions. The valleys filled with blue mist, the distance pinkish-white, hazy, the sky blue.

Vancouver is close to the mountains, which end abruptly in a plain with rather muddy rivers and water bodies. Jagged snow capped peaks on the skyline as at Calgary, but much closer and on the other side. The airport is modern, with a striking frontage of rock lumps in concrete.

I 'did' Vancouver rather quickly, but it was well worth while. Went by bus to Vancouver Hotel, then by taxi to the Geological Survey building near the old town centre. The office consisted of about three floors in a block of business flats – the least imposing of the Canadian Survey buildings. I met Don Tiffin, in charge of the small marine group, who took me to a hamburger lunch in the 'Meat Market' near Blood Alley. This is the old town centre, dating from the 1870s or 1880s, and had just been restored as historic.

The marine group was poised on the brink of expansion into an Institute of Oceanographic Sciences similar to that at Bedford, to be based at a new building planned for Pat Bay, with a total staff of around 450. Directors had yet to be appointed, but the field of the new institute was expected to be the continental margin, the western Arctic and the North Pacific. In the meantime only minimal offshore reconnaissance had been carried out. 14 petroleum wells had been sunk, without much success.

After lunch Don Tiffin took me by car to the University of British Columbia Geology Dept to see Professor Jim Murray. This comprises a brand new blue building with metallic vents in the roof. (Or are the vents blue and the building metallic?) Entrance hall is spacious, carpeted, and with gleaming plastic tile floor, large dinosaur on wall and bits of mammoth in a gravel centre piece. I was shown around the Department, where there are 500 2nd to 4th year students. Then taken by car to have a drink of water at Jim Murray's house and briefly meet his wife, after which he took me to the airport. In vague and not very believable terms he broached the possibility of my being invited to a lecture tour at the Department at some time in the future.

The University is on a Pleistocene spur between Burratol Inlet to the north and the Fraser River estuary flat (with the airport) to the south. It is located in a wooded undeveloped area with a view across to Vancouver Island. Logs were pounded against the spur and in the river, and piles of damp sawdust were being loaded by conveyor belt onto open barge in the town centre. The town is distinctly less developed than Calgary. We met one lady beggar, who asked for 25 cents. People pad around in denim shorts, particularly near the University. It was hot and sunny all day, and the heat here damper than in Calgary. There was the usual story of a cold wet late spring, but there is rarely a frost in Vancouver.

After a full day in Vancouver I departed for San Francisco in the early evening. From the air Vancouver appeared as a town of skyscrapers rising behind a sandy beach. Off the coast of Vancouver Island were long thin islands, apparent strike ridges. Vancouver Island itself with hills, woods, townships and lakes. Victoria a small township amongst wooded hills. Just below us the Strait of Juan de Fuca, running straight WNW out to the Pacific and half filled with low fog.

The Olympic Mountains are really rugged, irregular, part concealed in blue haze, much snow cover like the Rockies. Misty cloud streaming past close below us, with the sun glaring in from the west. As the mountains decrease in height a low cloud or fog replaces them. The Pacific is invisible. We (Canadian Pacific flight 073, Boeing 737) have dark oriental hostesses of Malayan appearance. We got menthol flavoured tooth picks with our dinner.

Fifteen minutes before arriving at San Francisco the low Pacific cloud decided to clear, and we had the flat top of an orange sun sinking into a clear horizon over a smooth lead blue sea. Below us, grey, a sandy beach with a line of breakers curving round it. Dark blue sky above merging to pale blue, green, yellow, orange, red bands along the horizon, with one thin grey cloud in the yellow-green area.

Lighted streets congregating into several centres on the east side of San Francisco Bay, then as we came in low across the bay, wobbling from side to side, I wondered if the pilot knew what he was up to. Presumably lining up on the runway, which juts out south-east into the water. San Francisco Bay bridge and causeway was a long line of yellow light with a hump in the middle.

San Francisco airport more like an early post-war railway station, concrete, crowded, cars and buses rushing past just outside. For a Greyhound bus to Menlo Park, my destination, one has first to lug one's luggage up to the Central Terminal, below an elevated concrete roadway, then lug it back to the bus stop having got a ticket and

missed a bus (every half hour to Redwood City, where one changes). Brash, noisy laughter, slouch, swagger, rubbish on the pavements, concrete, a good proportion of coloured people - citizens of the world's most powerful state and aware of it. Quite a few troops waiting for the bus, smoking and laughing.

The Greyhound bus to Redwood City proved to be rattling and uncomfortable, but with a friendly dark coloured driver. The whole appearance of the route was flashy and generally uninteresting, with neon motel signs and other outgrowths of American civilisation. I was informed there are 4 million inhabitants in the Bay area and 12 million in Los Angeles. At Redwood City I got fed up with waiting for the connection to Menlo Park and took a cab, arriving at 11pm.

I stayed for one night only, Thursday, 13 June 1974, in Red Cottage Motel, Menlo Park. It was a pleasant enough place, although not far from a main road. In the morning I managed an 8am swim in the tepid water of the motel pool. It was surrounded by lush Mediterranean style vegetation, but only where watered, the natural appearance of the landscape being dry brown grassy wasteland.

The main US Geological Survey office at Menlo Park was a set of six one and two storey buildings located in an attractive residential area and surrounded by beautiful sub-tropical plants in full flower in the sun. The marine section, though, had overflowed to a two storey building a couple of miles away in a black ghetto area of small bungalows, rather down at heels and with hangar type storage behind. The marine store was frankly a mess, with considerable quantities of equipment and miscellaneous junk spilling out along the roadway behind.

There was in fact an ex-Shell research building standing empty next to the main USGS office, but it could not be occupied as it did not meet contemporary standards for earthquake resistance. In the USGS there was, not surprisingly, keen awareness of the earthquake hazard. My principal contact, Hans Nelson, mentioned the BBC feature film, 'The City that Waits to Die' with approval, as being the best summary of the position.

I was invited to lunch on board the SP Lee, a USGS survey ship, with Park Snavely, Hans Nelson and John Cox, the captain. In the evening Hans Nelson took me back to San Francisco Airport along a four lane freeway with traffic travelling more or less at the same speed but overtaking on both sides.

It was at Menlow Park that I first became aware of the US habit of allowing senior scientists to retire from admin jobs and continue to lead research teams at senior-level salaries, whilst the admin directorate posts are occupied by younger staff. The senior professionals are thus not the same people as the directorate. Sounded good.

At San Francisco Airport on the evening of Friday 14th June I found myself in the sticky warmth of Gate 32 with a very cosmopolitan crowd, waiting for Hughes Air West flight RW729 to Los Angeles. The crowd included lots of pale oriental people, perhaps related to the Japanese farmers I am told hold most of the coast west of the Coast Range. They all looked very trim and thoroughly American, and a high proportion were young females. There were in fact passengers for three Hughes flights all crammed together at the Gate, and my own flight was sufficiently late to

cause me concern about missing an onward connection I was due to catch to San Diego. I was beginning to suspect that Mr Hughes and his outfit were slightly disreputable.

However, we did eventually board a yellow painted DC9 belonging to Hughes. We took off to the north west and circled round the north shore of the peninsula occupied by San Francisco. The airport is well south of the city centre, which is dominated by skyscrapers, with wharves jutting out to the north. Rows and loops of small close-spaced villas climb the hills and overlook the Golden Gate. About three long straggling lakes mark the position of the San Andreas fault, pointing to the north west area of the city.

This time there was no fog, and the red flat top of the sun was at about the same state as when we arrived, with the same bands of colour across the western sky, but broader it seemed, and with rather more of grey cloud stringers. The Golden Gate was golden. I just glimpsed the bridge, and the two other bridges across the southern bay were quite clear, also Alcatraz Island to the north. The whole sweep of the two bays leading into the Golden Gate and the Pacific – blue water with a zone of breakers against the coast.

The West Coast Range falls steeply to the sea in the north, but farther south I could not see the coast. The terrain is rough, even jagged, with brown topped mountains and tree filled valleys. Darkness fell.

We came in to Los Angeles across brilliant rectangles of green, orange and yellow rows of lights. On arrival I discovered that my onward connection to San Diego per American Airlines left from a different terminal to the one at which Air West arrived. “Wait for luggage; hectic dash down two extremely long, empty, putty-coloured corridors, carrying bags; quite inadequate labelling of the desks of the innumerable airlines. Missed my flight, but Delta flight leaves in 20 minutes from other terminal; dash back along the two long, empty, putty-coloured corridors. Caught the Delta flight, another DC8.”

We swept out across the sea, banking to the left above some ships anchored close offshore. Miles of rectangular multi-coloured lights, the fainter ones green, and the periodical through routes yellow. South of the International Airport and close to the coast was a low hilly area of less regularity, then mile upon mile of rectangular light patterns stretching away into the misty distance.

I certainly got some exercise in LA and I reckon I got as near to that city as I have any wish.

The Lindberg Field is right in the centre of San Diego, alongside the harbour of North San Diego Bay. I took a taxi to El Charro Hotel, La Jolla (pronounced La Hoya), for a mere \$6.40, having earlier been told it was 15 miles out of town. A wooden single story building with a restaurant, otherwise more like a motel.

At 9.30 am on Saturday 9th June 1974, in the middle of my Spanish omelette, the hire car I had ordered for the weekend was delivered. It proved to be a new cream coloured Ford runabout called a Pinto. I had to go back to the garage with the driver,

then screw up my courage to emerge into a multi-lane route full of the San Diego Saturday traffic. The most unusual aspect of the situation was the automatic gears, my first experience of these. "We don't bother to use the hand brake."

However, I safely drove the mile back to the hotel, passing La Jolla Cove on the way. I left the car at the hotel and walked back to the cove to look at the sea, skin divers, caves, cliff top walk, marine wild life reserve, very discrete commercialisation on road well back from the front - extremely well kept, no price tags on goods. Weather was warm but misty until 1pm, thereafter hot and sunny to 5pm, with a cool breeze later.

On Saturday afternoon I drove around 20 miles round the northern outskirts of San Diego. Much dusty construction going on. On the cliffs north of the town were model gliders working very effectively on upcurrents, also on the same cliffs people preparing for 'hangplaning' - one launches oneself over the several-hundred-foot high cliff on a sort of unattached fabric kite. It looks horribly hairy. A notice stated: "It is extremely dangerous to attempt to land on the cliff top; the best place is the beach."

"El Charro Hotel is very underpopulated. Fairly lavish facilities include an empty swimming pool, of which I am the only user. It is presumably too early for the main season - I doubt if I have seen more than a half-dozen fellow guests so far. There are succulents and palm trees everywhere, also a bush with brilliant scarlet bracts and many other flowering trees, banana plants, a lot of noisy sparrows, that blue lily-like flower of Portugal."

On Sunday 16th June 1974 I walked round La Jolla village and eventually found a shop open. Most of the day I spent by and in the hotel pool, writing cards and letters etc. There were rather more people about, in fact it was quite crowded for dinner, but I ate alone in my room - caraway bread, cheese, tomato, lettuce, peanut butter sticks, an orange and pickled gherkins - and continued writing.

Late on Sunday afternoon I visited La Jolla beach and watched a large crowd of people bathing in the surf between two green flags, with a lifeguard on a podium at one end and a life guard vehicle with a loudhailer giving directions from the other. The beach certainly seemed to be regarded as dangerous, and judging by the rows of surf I would not defer. I watched the sunset from the cliff tops. It was fairly golden, but nothing really special - a red sun which vanished quite rapidly.

On Monday 17th I visited the Scripps Institute for Oceanography, principally meeting Dr and Dr Winterer, and also Dr Mel Peterson of the Deep Sea Drilling Project. Lunch was a hamburger at a table in the open. The ocean is just in front of the Institute, and at least one hardy soul went for a lunch time swim. Some staff sat in their offices wearing swimming trunks, but the majority were more conventionally dressed and a few even wore ties. One of my contacts, Currey, remarked "The offshore is going to become a more and more important for western countries. We cannot sit back and let the Arabs ruin our economy."

I decided it was psychologically essential for me to have a snorkel in the Pacific Ocean when the opportunity was there. So at 4.30pm I went to do so just off the caves near La Jolla Cove, where shelter from the main rollers was reasonable. After

the first shock the water was quite warm, with a visibility of about 12 ft. Nothing particularly special. The North Sea is comparable. There were quite a lot of small sardine-like fish and a few gold coloured ones.

When I was warming up in the sun after my swim I noticed hang planes hovering over the cliff of the Torrey Pines glider centre north of the town, so drove there to get my first really good look at this, then, novel form of travel. The beach looked an awful long way below for those obliged to land there but some, at least, landed on the cliff top. Apart from the hang planes there were a dozen or so radio-controlled model gliders planing around.

On Tuesday 18th June I went again to the Scripps Institute in the morning, this time also visiting San Diego Harbour in my Pinto with Jim Coatsworth to have a look at research vessels Melville and Flip 1. Jim Coatsworth was a senior technician who had to use crutches to get around. Flip 1 is famous for being able to flood its stern and tip itself from a normal horizontal to a thoroughly non-normal upright position in the water, turning itself from a long narrow ship into a sort of marine tower which is very stable because its base is well below the main ocean swell. I learnt that during the tipping procedure all crew are obliged to be on deck and wearing life jackets.

In the afternoon of Tuesday 18th June I went to see a firm called Intelcom on behalf of the Marine Geophysics unit of IGS. They had their works in an industrial estate in the hot northern suburbs of San Diego. I spent four hours with R Berry (President of Intelcom), C Aker (President of AMI) and Alden. This was a glimpse at the other side of the American way of life. The problem was that MGU had accidentally paid twice for a satellite navigation system purchased from this firm, £25,000 each time. Intelcom admitted receiving the double payment, but were refusing to reimburse it for a variety of spurious reasons. Berry was very much the sinister intelligence behind it all, Alden his pleasant right hand man, Aker fearful that he was about to loose his job. I missed my swim today because of this visit. American businessmen dress rather formally, unlike most of their academic equivalents. My best efforts did not produce an immediate reimbursement, but I later gathered the affair had been sorted out.

My travelling on the 18th showed me, however, a little more of the currently natural coastal Californian vegetation of early summer, ie the vegetation which would today be ubiquitous in the absence of human intervention . It is a pretty dry scrubland, including a lot of wild oats – already seeded, dull green leathery shrubs, eucalyptus trees imported from Australia for the railroads but found to be too soft for sleepers and now gone wild. A dry dusty land, but the mountains 50 mile behind the coast are reported to be mantled by green conifers, and beyond them desert takes over.

At 5.30am on Wednesday 19th June 1974 I was awake, and soon afterwards bowling along Interstate 5 Freeway to the San Diego Airport in my Pinto, en route to LA and Houston. It was a wrench to lose my Pinto, to which I had become attached, no doubt largely because I had developed a pride in my new-found ability to survive in freeway and downtown driving conditions. The automatic gears of the Pinto certainly helped a lot.

At 7.15am I boarded an American Airways 123B plane under the usual San Diego blue sky. As we headed north across the sea towards LA, range upon range of smooth

blue mountains became visible in the eastern distance. Breakers everywhere along the beaches beneath us, the Scripps Pier, the rounded complex water body of Mission Bay – a swamp entirely reclaimed except for a 30 acre university wildlife area at the north end, La Jolla and the EB Scripps Memorial Park projecting to the north, the complex intersection of Interstate 5 and 8 with minute traffic flowing.

As we approached LA low cloud obscured much of the town, but it cleared near the airport. Row upon row of intersecting rectangular streets, but trees – including palms – everywhere, also verges along most of the roads and small lawns round the houses. We crossed a 12 lane highway just before the airport.

This time round LA did not seem so bad. Remembering my earlier experience I had taken the precaution of booking my case through to Houston, so I was spared having to lug it with me. As the weather was misty sun I walked the two blocks between the American and Continental terminals on the pavement. The walk was uncrowded and quite pleasant. Also I noticed there were 75 cent trolleys available, which I missed last time. The Continental departure lounge, also, was uncrowded and pleasant. Round, carpeted, with a plastic Hawaiian motif – palm trees, straw huts, flowers etc.

Our DC10 trundled round the runways for an eternity before deciding to take off, ascending over a pleasant sandy beach lined with bungalows. Hills close to coast to north and a hilly promontory to the south as we circled round to the south. A large hilly island some distance offshore in the misty distance with the white furrow of a boat ploughing out to it. Several small round (seemingly man-made) islands just off a long sandy beach south of the hilly promontory. Passed again over a dry concreted river bed I noticed on the way in.

10.00am Crossing those dark coloured wooded mountains now. Patchy. Large areas of brown grass divided into rectangular fields, but eroded tree-covered ground almost up to the summits in places. On the summits dark green scrub. Occasional areas of semi-bare grey rock.

10.07am Dark grey/brown eroded hills descend abruptly, but along an indented line, into pale yellow sandy desert with low dark hills and a few rectangular fields.

10.09am Crossing north end of a large steel blue lake (the Salton Sea), with yellow desert up to its shores on two sides but rectangular green and brown fields extending a long way south from the southern end (the Imperial Valley). Then more desert lapping up against bare dark brown irregular rocky outcrops. Signs of dry stream courses running off the hills into the sand areas. Ridge east of the lake looks very much like an enormous sand dune.

10.15am Crossing a winding river in a valley with green fields, cutting through the desert. (The Colorado, boundary between California and Arizona.)

10.30am We passed over more arid looking desert with a few low irregular hills, and it is now difficult to see the ground – much low white cloud interspersed with patches of purple mist through which it is possible to glimpse fairly level terrain and occasional large rectangular fields.

10.40am Brown ground with dry stream courses, some roads and tracks, some houses, villages, rectangular brown fields in the flatter areas only. Irregular darker-coloured hills, distant, looming up through a pale purple mist. There

is a thin misty band of pale yellow where the purple merges upwards into the pale blue of the sky, then quickly to the deep blue overhead.

Dried up whitish-brown lake to our right. A good many brown and dull green rectangular fields in its broad brown valley enclosed amongst mountains on each side – the vegetation is dry scrub or grass rather than desert. Each valley, and they seem to run mostly north-south, is occupied by a dry stream course.

11.12am *The pilot announced we were passing over El Paso, the junction of Mexico, New Mexico and Texas. Just before El Paso we crossed a substantial area of pale yellow, which appeared to be sand. A narrowish valley of dull green rectangular fields running to the south-east must be the Rio Grande, with Mexico to the west. Interstate Highway 10 is visible winding down the valley. There are large areas of dirty yellow with dark spots, presumably thorn scrub*

11.25am Thorn scrub passes to what is probably dry grass with sand in the hollows and quite a lot of straight dirt tracks crossing the low hilly topography, then fairly large patches of square brown fields

12.05 to 2.05pm. Straight out of thorn scrub with dry stream courses to a wide river leading into a complex set of long winding lakes surrounded by urban areas and a large airfield, possibly Austin. Green fields, light brown recently ploughed fields, patches of woodland, but the pattern here not as regular as elsewhere. There is a uniform cover of small white clouds marching across it all just below us.

2.10pm Starting descent into Houston.

My perch in Houston was the Albert Pick Motor Inn, SW Freeway, about an hour's ride in the Air Coach. One takes a ticket to Greenway Plaza Terminal, then a courtesy car, called on a courtesy telephone, for the remaining 100 yards.

I stayed at the Albert Pick (room 407) for two nights, 19-20th June 1974, and managed two swims in the hotel pool with freeway traffic wooshing past just on the other side of a low wall – very pleasant all the same, and mostly extremely warm and sunny. From my 4th floor room I could, though, see heavy cloud to the south, beyond the Astrodome. The sun very nearly overhead at midday.

Room temperature was anything one wanted, thanks to the air conditioning. I kept it pretty cool, despite the TV appeal of a tieless Secretary for Energy for people to run their air conditioning at no lower than 78°F and make up for it by not wearing a tie. This, plus a 55mph speed limit, plus the appointment of a distinguished panel to advise the President on “Project Independence”, was the US reaction to the contemporary fuel shortage. The day I arrived the garage next to the hotel was stating “Sorry no gas. Today's allocation sold.” And this is Houston 1974. I was rewarded for my attitude to the air conditioning by a noisy fan motor which kept stopping and starting all night, jolting me out of my sleep.

My hotel had 13 TV channels available by push button. I walked through green leafy suburbs to Bellaire, along the Buffalo Speedway. A notice stated “Thru trucks prohibited.” The suburbs seemed deserted – just the sound of air-conditioners humming in every home.

I spent the afternoon of 20th June 1974 in the offices of McClellands, a Houston engineering consultant concerned with the North Sea, mostly examining and discussing core samples from the Piper Field. Whilst I was with them there was quite a heavy rainstorm, which finished by preventing me from having my evening swim. (Houston gets 46in rainfall pa, Corpus Christi only 20 in.)

On Friday 21st June I needed to get up at 4.30am to catch a Texas International DC9 flight from Houston to Corpus Christi, which I did with 5 minutes to spare. We departed into a blue sky with a low streaky mist which semi-obscured a green land. The sun gleamed on what I assumed to be Galveston Harbour, which wheeled away behind as we banked over downtown Houston, its skyscrapers standing out as a neat knot. The ring road, the SW Freeway with the Conoco Tower, the Albert Pick with its small blue swimming pool, the Astrodome in a large clear area. Five minutes later a large winding river, then some large lakes away to the left, well wooded green countryside, not too rectangular.

Initially the Caribbean comprised a blue grey mistiness, but eventually we were passing over a large bay with a bar. I identified Port Laraca and beyond it Espiritu Santu Bay. There are muddy inlets with convoluted meanders, often bordered by pale yellow sand. The land was flat, low lying, intensively cultivated, with many chocolate brown fields.

After the 35 minute flight I was met at Corpus Christi Airport at 7.35am by Henry Berryhill of the USGS, and spent most of 21st June in his air conditioned Marine Office. I stayed at Sea Ranch Hotel (Room 35), Ocean Drive, a wooden ranch-type motel looking out across Corpus Christi Bay – muddy greenish brown and 13ft deep. All around were well sprayed lawns and palm trees rustling in the breeze. Just below my room was a small blue swimming pool, and, further round, two oil rigs out in the bay. The air conditioner was even more noisy than at Albert Pick, to the extent that at night I had to switch it off to get some peace.

On Friday evening I was collected by Henry Berryhill and taken to his house for dinner with his wife and 17 year old son. Very pleasant evening. The son wants to be an astronomer. As we left to return to my hotel I admired a large pot plant in the hall, a bit like a rubber plant but with larger leaves. It was then discovered that some animal had mysteriously taken a neat circular bite of about 6 square inches out of one of the tough rubbery leaves.

On Saturday 22nd I hired a brown Ford Maverick at the airport for the day and did a 50 to 60-mile round trip of the neighbourhood. The Maverick was comparable to my Pinto, and also with such excellent air conditioning that I had occasionally to open the window to warm up a little. Corpus Christi is located on the south-west flank of a near circular bay of the same name, which is almost cut off from the Gulf of Mexico by Mustang Island, part of a long NE-SW sand bar along the US coast. I travelled round this set-up in an anti-clockwise direction. Quite a rush to get back to the airport on time.

I went first through Corpus Christi for a shopping spree in the Mall and to check out from my hotel, then across the JF Kennedy Causeway to Mustang Island, by ferry from the north end of the island, then round the north side of the bay and across the

Harbour Bridge back to the airport. The long firm sandy beach of Mustang Island is not developed for some reason, but there are several car entrances through sand dunes onto the beach, and one can drive for around 15 miles along the beach sand. Great.

The beach had a gentle slope into warm water, with a lightish surf. I had a swim of sorts. Visibility about three feet. I collected the shell of a flattened sea urchin called a sand dollar. There were millions of small molluscs tumbling about just below wave limit, burying themselves in the sand whenever disturbed. By volume they must have constituted 50% of the top inch of sand. Behind the present active sand barrier is an older barrier, covered by trees and supposedly pre-dating the last glaciation low sea level. There is, however, a problem in accepting this interpretation, as my contacts informed me that sparker records appear to show it sitting on Holocene strata. Numerous colourful flowers in bloom on the higher levels of the beach.

At the north end of Mustang Island is Port Aransas, from where a short ferry shuttle service is operated by about five ancient looking boats. Houses at Port Aransas are on stilts, suggesting the sea sometimes gets over its normal limits.

On the mainland fields are mostly occupied by sorghum - a ripe dark brown cereal resembling a loose packed maize, and also cotton - low bushes in rows with green leaves like a maple and no flowers in June. The sorghum is responsible for all the dark brown fields visible from the air. Corpus Christi Bay is green.

My flight back to Houston on the evening of Saturday 22nd June was per Texas International DC9 flight from Mexico City to Salt Lake City with various stops off. The Texas International frisking proved to be the most thorough of my travels. Both ways they really rummaged in the hand luggage of passengers. By now I had discarded my jacket into my case, but even so it was pretty hot sitting below a concrete awning waiting for the plane. Hostesses on this flight wore leather Texas boots and yellow hot pants.

As we approached Houston extraordinary meandering patterns like contours became visible across many of the fields. They were continuous irrespective of field boundaries and my best guess was that they may have marked flood levels of temporary lakes.

On Sunday 23rd June 1974 I was again travelling by early morning bus from Houston's Greenway Plaza Terminal to the airport, through the downtown area, en route to Washington with a change of planes at Atlanta. The downtown area was a maze of concrete roads, flyovers and multi-storey buildings, which must virtually all date from the previous ten years. Very little by way of shops. Here and in Corpus Christi all the shopping was done in suburban precincts.

8.30am Departed Houston on Eastern flight 592 to Atlanta, per Boeing 727 "Whisperjet" We soon crossed a very muddy creek with the same meandering patterns in the fields.

8.45am. A very meandering muddy river surrounded by broad swathes of woodland on both sides, as was the creek. The meandering patterns are double dark lines, perhaps 10ft apart, and they occur on both brown and green fields.

- 8.50 am Another very meandering muddy in woodland, and a town – looks like Beaumont.
- 8.52am Yet another. Must be the state boundary with Louisiana. It seems probable that the rivers overflow into the woodland areas. We are following Interstate Highway 10 at 33,000ft. Towering white cloud ranges to the north are a thunderstorm over the Mississippi, on account of which we are following a more northerly course than normal.
- 9.05am Crossing the Mississippi. Very brown, somewhat meandering, flowing through solid dark green woodland slashed by lakes – long, thin, and mostly brown, but some green. Broad area of woodland.
- 9.10am. Error. That must have been a distributary. Main river now – very brown and meandering and can just see the suburbs of Baton Rouge, capital of Louisiana. This area mostly cleared of wood, with significant habitation and farmlands, but the fields are pleasingly irregular.
- 9.13am Lake Maurepas and Interstate Highway 55. Trees growing down and into the water. North shore of Lake Pontchartrain – partly wooded, partly (east side) with a sandy beach. Still a great deal of woodland.
- 9.20am The ground is getting slightly obscured by a regular scatter of small fluffy clouds, outriders of the towering billowing mass of white which runs NW-SE and which we are slowly approaching. The whiteness sprouts upwards like overripe cauliflower heads.
- 9.23am We are passing just above the tops of a field of towering cotton wool, white as fresh snow, and mostly with clean sharp edges. This is, though, just a spur of the main cloud mass which rises above our level to the north.
- 9.25am Clear ground again. Dense woodland round a meandering river, then more irregular fields of green and brown, with a good deal of woodland.
- I keep seeing what I take to be oil wells – branching roads going to bare patches and ending, either in fields or woodland. One area was in the swampy woodland west of the main Mississippi river. In this case the road started from the river's edge – landing stage on a muddy river in a humid forest swamp.
- 9.32am Before the ground vanished there was a large meandering river, possibly Chickasawhay River near border of Mississippi and Alabama.
- Then turned north and flying at the top surface of some vague uninspiring-looking uniform misty cloud with no clear interface which has totally obscured the ground. Milky grey-white below, dark blue above, and a thin zone of lighter blue just above the junction at our eye level.
- 10.45am Starting descent into Atlanta after flying in anonymous obscurity for about an hour.
- 10.55am Muddy meandering Chattahoochee River in woodland. Banking left over Interstate Highway 85. Ground 70% woodland and the rest mostly green fields, some brown – irregular patchwork. Scattered villages and houses. Now 90% woodland as far as the eye can see, which is a considerable distance.

11.03am High rise buildings of downtown Atlanta just below us, next to a huge motorway intersection and beyond that a large glass stadium with blue seats, open at top.

Open layout suburbs set in trees and often backing on woodland.

I had about half an hour in the large cool marble airport at Atlanta, where I bought a Confederate flag and a bale of cotton for Christopher. The people seem conscious of their southern heritage. There was effective air conditioning both in the 'mobile lounge' (20 ft wide) which trundled us from our aircraft, and in the airport itself.

Eastern gave us an extremely thorough luggage check at Houston, including opening gift parcels, but at Atlanta the same airline made no check at all, and this is the first time there has been no check.

The Americans are much given to carrying their clothes on planes in plastic hanger bags, and in fact there is a special rack aboard for hanging them.. Often this bag constitutes a person's only hand luggage.

I didn't see much of the famous Stone Mountain, which the postcards say dominates Atlanta's skyline, but there were some low hills, probably to the east, as we took off. When we departed there were ten jets queuing for the same runway, and three more taxiing out.

We took off at 12.03pm, 45 seconds after the plane in front. The flight was another Eastern 727. I discovered that not only do Eastern call all their jets "Whisperjet" irrespective of make, but they mostly have a white livery with Oxford and Cambridge blue bands and an aluminium underbelly.

The Atlanta to Washington National flight was mostly above cloud, but I was by this stage becoming an aficionado of clouds. There were thin wispy scrolls of stratus above us and a vague patchy transparent layer of stratus below. At a lower level, cumulus was building up and in places bursting through our patchy stratus layer, whilst at the same time sprouting cumulo-nimbus downwards.

So, in the early afternoon of Sunday 23rd June 1974 I arrived at Washington National Airport. It was a pretty decrepit and uninspiring cream place with long corridors and a lot of nonchalant fed-up staff, although two (both black) did enquire of me with the politest interest, "And how is it with you today sir?" What, I ask you, is the correct response to such a question when put with enthusiasm?

Almost the first spectacle I was to witness in Washington was a massive altercation between the taxi loaders and the taxi drivers at the airport. It appeared that the drivers were not supposed to solicit fares, but they did so except when the loaders managed to drive them off. There were no meters in the taxis, just recommended fares, so it was advised to agree an approximate fare in advance. I shared a taxi to the Sheraton Park Hotel (Woodley Road) with a female who looked a bit like a younger version of Lanchen Greig.- ie, she was plump. She told me, though, that in 1959 she had climbed the 900 steps of the Washington Monument.

Washington was persistently cloudy and drizzly, but after settling into my room I decided time did not permit taking account of the weather. I changed into a red flannelette shirt and extracted my plastic mack for the first time, then set forth into the direction of the town centre. I walked six miles in all – up Connecticut Avenue to the White House (very small and very white, but rather nice looking, with red flowers on the lawn at the front); along Pennsylvania Avenue to the Capitol (rather like going up

the steps of Montmartre in Paris, except that because of the weather there was practically nobody around; beautiful magnolias in bloom beside the steps); along the Mall to the Washington Monument, on the way glancing at the National Gallery of Art, the National Museum of Natural History (a rather nice Triceratops in plastic outside), the National Museum of History and Technology (three lengthy and high-sounding quotations engraved on the front), and the Smithsonian Institute (red brick and distinctly small capital style).

In Washington the pedestrian crossing signs say 'Don't Walk', then they change to 'Walk', but having got one half way across the road they turn to flashing 'Don't Walk' again, apparently satisfied with their efforts to inveigle one out. Moreover, on at least two of these crossings I inferred that they only read 'Walk' because the bulb had packed up in the 'Don't' bit.

The Washington Monument (up which one went in a lift) opened in 1959, and in fact it was permitted to walk down but not up. The walk down is itself quite an effort. The tower was left in an incomplete condition for a considerable period, but finally opened to the public in 1888. It looked a bit of a monstrosity, and I felt no surprise that the builders became discouraged before completion. Inside, there is a huge number of memorial stones and plaques built into the wall and contributed by everybody from individuals, societies, companies to foreign states and cities. I noticed Bremen and various fire brigades. The inside is square, with the steps winding down the outside and the lift up the middle. Observation windows are small, and I was lucky the weather was discouraging sightseers. From the top one could clearly see the places I had passed and also the Lincoln and Jefferson memorials, together with the Potomac River – very much in evidence when I flew in earlier in the day.

Next day, Monday 24th June 1974, I had breakfast in the hotel drug store. It was muffin with butter and syrup – quite interesting but hardly ideal. Skies were still overcast, but at least it was dry; warm, but nothing like in the south. Before going out I even experimentally donned a vest in the interests of feeling respectable for a change, but after trying the outside temperature I thought better of it and removed the vest. The only way of checking the outside temperature was by going outside, since the windows were of the non-opening variety. Ventilation in my room was via a rattling air conditioner, and the method I found of discouraging this was by turning it up to 80°, at which instruction it stopped and left me without benefit of its efforts to provide suitable air.

All American hotels have an ice box which one seeks out to fill a container provided in the bedroom. Fine. Another American habit, though, is to fill cold drinks to the brim with ice, so that the glass ends up half full of drink and half full of ice – rather a nuisance when one is thirsty, and an unnecessary expenditure of coolness when one intends to consume the drink right off.

At midday on Monday I was picked up by a car from the British Embassy and driven the 20 miles to the HQ of the US Geological Survey at Reston. Much lush green vegetation which in places looked like a tropical rain forest, with huge plane trees sprouting up from deep valleys.

8.30pm Monday 24 June 1974 – Departed Washington en route to Boston. “Goodbye muddy Potomac, goodbye Capitol dominating the skyline, goodbye most of the city I

saw yesterday, goodbye modern building by the Potomac which must I suppose be the John Kennedy Centre, goodbye Marines war memorial which I suppose we must have passed directly over. (I saw it earlier on my way by shuttle bus from Dulles Airport to National Airport.)

“Hello pink cloud mountain tops with our shadow on them - alongside but far distant, hello pale blue sky merging all round the eastern horizon into yellow, red and grey. I am becoming a bit of a dweller in the skies.”

In Boston I stayed on the 13th floor of the Statler Hilton Hotel, where I made a mental note that my entire wing was without any fire escape. Boston is best passed over with minimal comment – a scruffy industrial city with quite a lot of 19th Century hardware still about

Tuesday 25th June was thoroughly cold and drizzly, at least as bad as anything Scotland can produce in June. I took a taxi from Boston to Woods Hole Oceanographic Institute, along a road with neon-type ribbon development in many places – little sign of any planning control. Poor sandy soil and a good deal of forest. The taxi driver attempted to get a \$1.35 tip from me on top of a \$3.40 fare, a mark up of over 30%. On being offered 10% he refused, saying my need was greater than his. Thereby he saved me about 3 shillings. I believe he was a Costa Rican – small dark people speaking a version of Spanish.

The Woods Hole Institute was made up of a thoroughly informal, and seemingly disorganised, crowd of highly intelligent people all doing their own thing in a scatter of red brick buildings cheek by jowl with a slightly seedy holiday resort. Both are set in luxuriant woodland. Woods Hole is the ferry terminal for the island of Martha's Vinyard, where Edward Kennedy had his misadventure. It is located in the Cape Cod Peninsula, a principal local holiday area.

On Tuesday night I stayed in the Marine Laboratory Dormitory, Woods Hole. I was provided with a pleasant clean room in a modern university-type residence, with the usual private bathroom, but for the first time no TV and no ice box (that I could find). I took a walk around before bed, and was constrained to resume vest and pullover before doing so. I made the mistake of buying a packet of red-stained pecan nuts in the drug store – never again. It is a considerable nuisance getting them out of their shells.

On Wednesday 26th June I left Woods Hole and travelled by Almeida bus to New London through pleasant wooded countryside. Noted adverts for ‘Whaling Museum’ at New Bedford, which was a former major whaling station. At New London I took a taxi back to Trumble Airport, Grotton, where I picked up a Hertz hire car – a Plymouth Satellite Sabrina, a large blue car very fast on the uptake. With this hire car I drove along Interstate Highway 95, the Connecticut Turnpike, to Exit 10, where I stopped at a garage and phoned Nicole's contacts, the Hathaways, as I had arranged. The Hathaways were people for whom Nicole had been an au pair to look after their kids, twice I believe.

In about 10 minutes they came to meet me and took me to their pleasant red-stained house in a pleasant woodland area. We were not in bed until about midnight. The children, Nicole's charges, were Holly (7), Leise (6), Chip (2). Chip was very much like the youthful RD, including refusing to be photographed; Holly putting up very well with Leise; Leise knowing what she wanted and insisting on her rights vis à vis

Holly. The parent's names were Judy and Buzz – but that evening I was accidentally calling Buzz 'Chuck'.

Next day, Thursday 27th June 1974, I deposited the hire car at Stamford and caught a rather down-at-heels train called an 'express' from Stamford to New York Grand Central Station.

Because of the time spent with the Hathaways I 'did' New York rather rapidly - although I felt my main objectives were met. It was more or less as expected. Busy, cosmopolitan, rather dirty, tall buildings but they didn't seem all that tall in terms of what one expects these days. Taller and more numerous than in other downtowns though. Dull slightly misty weather, but not cold like Woods Hole.

I dumped my luggage at the station and took a taxi for the very considerable journey out to Lamont Observatory. The return trip cost \$40, for just one hour there! On the other side of the George Washington Bridge we entered the Palisades Parkway, running for miles and miles through very attractive deciduous woodland on high bluffs over the river. The bluffs are the Palisades. Lamont is so isolated that it was no surprise nobody knew where it was. The two New York taxi drivers with whom I had dealings were both pleasant and helpful in their efforts to decide where Lamont was situated, but the first had to admit defeat and I had to phone the observatory to discover where it was.

When I got back I took a 15-minute walk around the Grand Central Station. The station itself was certainly large. I didn't see much in the way of trains, but the whole innards of the station is a cream-coloured confusion of interconnected halls and shops, with cream-coloured pillars supporting the upper layers. I chiefly wanted, though to clap eyes on 5th Avenue, which I succeeded in doing. I saw the Chrysler Building (1046ft), Empire State Building (1250ft), and from the back of the airport bus the World Trade Centre (1350ft), also a rear view of the United Nations Building. From the back of that bus it was possible to get a good idea of the New York downtown skyline, even though seen from the opposite side to that normally photographed.

Kennedy Airport I found rather smooth. An excess of yellow taxis and buses edging along. There are five main terminals, of which several have a number of separate buildings for different airlines. BOAC, as it was still mostly called, was in Terminal 5.

8.40pm Thursday 27th June 1974. Seated aboard British Airways 747 en route to Heathrow, and queuing for take-off. The route to be over Hampton, Nantucket, Sable Island, Lands End. Sitting alongside a spread of red earth apparently due to runway extensions. Beyond the red earth is a muddy-looking water body with a speedboat ripping along. A mile or two across the water is a darkening land, with high rise flats and an arched-up set of bridge lights. The chef steward is very much an English butler – courteous and possibly unflappable.

10.20pm. Finally took off after lengthy delay due to only two runways being operational. A great deal of champing at the bit amongst passengers, including demands to open the bar. This resulted in complimentary drinks all round when we eventually got away.

15(b) CANADA 1976

Our visit to western Canada in 1976 arose directly out of my one-day stay in Vancouver in 1974 when I got to know Don Tiffin and Jim Murray. These contacts resulted in a joint invitation by the Cordellieran Section of the Canadian Geological Survey and the University of British Columbia to visit for a week, to deliver a few leisurely lectures on UK offshore geological survey experiences.

In addition the GSC was interested in discussing handling a Pisces submersible to which access was available. Pisces IV had been accidentally acquired by the Canadian government, its sale to Russia, for which it was constructed, having been blocked because it contained US restricted components. The submersible had a mother ship called Pandora, but launch and recovery procedures were primitive by UK standards.

Offshore survey in western Canada had previously been distinctly limited, although there were ambitious and well-funded plans for its development in the immediate future. An additional attraction for me was that two innovative research submarines were based in Vancouver, and advanced plans for Arctic offshore oil drilling were in hand.

Friday 12 March 1976.

We flew Turnhouse to Prestwich (Viscount), Prestwich to Toronto via Montreal (British Airways 707), and Toronto to Vancouver (Air Canada 747).

The clouds cleared over Greenland to show a blue sea with streaming patches of white pack ice drifting south. Towards the coast the ice became more consolidated, the land mountainous, jagged and white, then disappeared below cloud once more.

With clear skies again we could see there was similar pack ice off the Labrador coast. I presume we crossed the southern part of the coast, but for a long time all we saw was snow, rock – glacially smoothed and with frozen lakes, and coniferous forest – often sparse. As we approached the north shore of the St Lawrence there was the occasional cleared swathe through the forest, with lines of power cables. It was a long way up the St Lawrence before we saw the first tiny dots of village houses clustered in the snow – usually along a central road.

Over Quebec we started descending and had a good view of the Heights of Abraham, looking pretty insignificant but quite unmistakable. At Montreal we sought the Olympic stadium in vain. We had a half hour wait at Montreal, after which the ground was obscured for the rest of our journey.

Toronto was melting slush and miserable, also the four-hour wait until 7.30pm was a bind. We went along the long subway from Terminal 1 to Terminal 2 to join a connecting Air Canada 747 flight to Vancouver. Terminal 2 has an enormous long carpeted corridor with electric trolleys on

which one can hitch a lift. We spent some time getting 25 cents to put our hand luggage in a locker so that we could take a walk around.

We had expected to be met at Vancouver by Jim Murray, but after a wait it was Don Tiffin and his wife Carolyn who appeared, explaining that Jim Murray had been called away in a hurry on account of the illness of his father. The Tiffins took us to the Vancouver Delta Hotel, a rather magnificent place with a tower overlooking a lower part with swimming pool, restaurants etc. After we were installed they took us for a drink to the Hyatt House Hotel, over water near the airport, with a marina just outside the window. Very modern and pleasant. Here I was introduced to Cuba Libra, a Coke and lemon and rum drink which was to be repeated often later. We were pretty glad to get to bed at about midnight local time (8am GMT).

Saturday 13th March 1976

At about midday we were picked up by Ev Murray and first taken to lunch at her house and then to the Faculty Club on the UBC campus, where we were to stay. At lunch we met Annie, a Swiss au pair looking after the Murray children – Davie (oldest, 9 years), Craig (8), and Heather (4). Heather was the one most in evidence as she had constantly to be sought out in the road.

On the way to the Faculty Club we were accompanied by Annie and Heather, with whom we visited the Queen Elizabeth Gardens. Rather well landscaped, with a river somehow managing to flow on the top of a hill. There was a bubbly dome with a hothouse garden, into which we did not go, and a rather nice view. We did not stay long at the QE Gardens, though, on account of a distinctly cold wind.

The Faculty Club was pretty magnificent but almost totally empty on a Sunday. When we arrived on Saturday we were given a key to our apartment plus a front door key. We then took a walk down to the beach to the north of the campus – steep and through massive coniferous and fern jungle – the beach littered with logs. We had steak Diane flambé served with panache in the Faculty Club for dinner, then early to bed.

Sunday 14th March 1976

The Faculty Club caretaker brought breakfast by request at 9am and thereafter we walked around the campus, identifying the Geology Dept, the Sedgwick Library, the outdoor swimming pool (there was no indoor pool, but one was being built next door), the bus stop for town. Discovered that trip to town costs 25 cents, which must be in exact change. We walked on to discover Totem Pole Park. We had no lunch.

In the afternoon we were picked up by Don Tiffin and taken to his house in Richmond, but on the way he and Carolyn took us up to the Simon Fraser University – a huge and empty engineering structure at the top of a wooded hill swept over by icy winds. Fine views all round, and patches of snow. This university is still raw and incomplete with few students in evidence,

since most have to bus in. There is a magnificent high ceilinged indoor athletics centre and swimming pool, both with hundreds of cylinders suspended from the ceiling (perhaps for acoustics?). The cost of building the rooms on stilts, the work of a noted Canadian architect (name forgotten), must have been considerable.

At dinner chez Tiffin we met two Dons and two Hughs, plus their respective wives. One Don was Don Tiffin, the other was Don Morecombe, Managing Director of Horton Marine, the firm owning the 93ft survey submarine Auguste Picard. He was a pleasantly florid American business type, with a slightly formidable wife.

One Hugh was Hugh Gabriellie, head of the Geological Survey of Canada in Vancouver, the other Hugh, whose name I forget, was also a member of the GSC.

In a rather cold wind, the Tiffin boat, nameless but later to be christened "Ocean Girl", was inspected by the assembled party. It was – is - 48ft long, 15ft wide, and has two quarter inch skins of 6 layer fibreglass separated by a layer of balsa wood spacers. The hull was in the painting stage and some of the interior was fitted out. Don Tiffin said he had put in four years work so far, and two more would be required for completion. He had a workshop alongside in his back garden and a shed over the cockpit area. A large diesel engine was already in place. The total weight was expected to be 16 tons. Little did we know it, but we were to see a lot more of "Ocean Girl" in the fullness of time.

Monday 15th March 1976

I was picked up by Don Tiffin at 9am and spent all day at GSC yaking with him about operational methods with Pisces and investigations of North Sea "pockmark" structures etc. We went to some place in Blood Alley for a light lunch. Lucette did a bus exploration tour on her own, and got to Stanley Park amongst other places.

In the evening we had another slap-up meal at the Faculty Club – steak stuffed with mussels.

Tuesday 16th March 1976

Had arranged to meet Dick Chase at the UBC Geology Department at 10.30am, but Jim Murray phoned to say he was back, so went to see him instead, and was then taken on a tour of the Geology Department. The two of us had lunch with Lucette at the Faculty Club

In the afternoon I gave my first lecture, to the Oceanography Department on offshore survey methods and equipment. In the evening we had a cheap meal in the cafeteria part of the Faculty Club. Ignorant people, we had not at that time come to realise that anything we cared to order, cheap or expensive, alcoholic or otherwise, for ourselves or any guest, would be paid free by just indicating "Account 9550" on the meal chits.

This was the day I had dished out to me a brown envelope containing \$300 less \$45 'income tax'.

Wednesday 17th March 1976

In the morning I lectured the GSC on the North Sea Quaternary succession. Lunch with Don Tiffin at the Planetarium Restaurant. Fine view of downtown Vancouver, and a magnificent steel crab fountain in its forecourt.

In the afternoon I visited Horton Marine Explorations Ltd in North Vancouver, where I saw the submarines "Auguste Picard" (Captain Tod Slaughter, an ex-RN submarine commander) and "Ben Franklin" (in shed for a badly needed overhaul). With a length of 93ft, Auguste Picard was a substantial vessel fitted out for work in the North Sea, and ready to begin in early summer 1976. At the time of my visit, though, there were no firm contracts. I confess I was slightly dubious about the operational viability of both of these submarines, but at Horton Marine there was plenty of enthusiasm and leading-edge thinking.

On Wednesday evening Lucette and I had dinner with three post-graduate students in the Faculty Club. They were Gale (a housewife resembling Tom Kelly, with two children, of whom the eldest was a teenager – she was doing a post graduate thesis on Frazer River sediments, David (ex St Andrews student) and Ian (an American whose 59 year old mother was a university student).

Thursday 18th March 1976

Lucette had a day in town with Ev Murray

In the morning I had a tutorial with Gale on her EG&G sidescan sonar records of the Frazer River. They showed fields of sand waves and deep scouring around the piers of bridges, also many large logs both floating and lying stranded on the river bed. I had lunch with Jim Murray in the Barn Restaurant near the Department.

In the afternoon lectured at the Geology Department on the hydrocarbons of the UK shelf. In the evening we had dinner chez Jim and Eve Murray where we met Dick Chase (tall, dark, handsome and wifeless) and a person I think of as "Tilley" (a cross between her Scottish namesake and Grace Jones – she had a 15-year old daughter)

Friday 19th March 1976

In the morning I lectured the fourth year Oceanography class, mostly on hydrocarbons, but also on offshore survey methods and hazards. My lecture took the place of one of Jim Murray's regular lectures. Had lunch in the Faculty Club because the Barn Restaurant was full. No Lucette, though, as she was out.

In the afternoon I visited Harry Warren at some length. He is a geochemist working on trace elements in plants and their effects on human health. One needs to watch one's potatoes and lettuce it seems. I may be able to help him with material from Shetland. Later I gave a two-hour seminar on North Sea hazards, mostly about pockmarks.

In the evening Lucette and I had invited Don and Carolyn Tiffin to dinner in the Faculty Club, and he appeared in a suit. A free wine and dine for all, although we still did not realise it. More steak Diane flambé.

Saturday 20th March 1976

An administrative morning – arranged to get hire car to travel Vancouver to Calgary, then visited travel agent to revise air travel tickets. Thereafter, still travelling by bus, we returned to the Planetarium Restaurant for lunch. After lunch we 'did' the Vancouver Centennial Museum (in same building as Planetarium) and the adjoining Maritime Museum. The Maritime Museum has the first ship to traverse the NW Passage both ways (in early 1940s) preserved in a special glass building. We also rather rapidly 'did' the Stanley Park Zoo, where we saw whales being fed, although we missed the feeding of the killer whales.

We met Jim Murray at the travel agent's and invited him and Ev out to dinner. We went to Ming's restaurant in the downtown Chinatown. An excellent Chinese orchestra played a mixture of Chinese, pop and classical Western. There was dancing, also dancing and singing by two Chinese girls. The evening was enjoyed by all and (fortunately) was not expensive. This was the evening when Jim Murray knowledgeably ordered a number of Chinese dishes for the party, only to be coolly told by the waiter (before he had finished) that "it is not possible for human beings to eat so much". This caused the order to be substantially downsized.

Sunday 21st March 1976

Had our usual Sunday morning breakfast served by the caretaker in our room. It was raining in morning, but not too bad. We caught a bus to Vancouver Aquatic Centre after phoning to check it was open – I swam my usual ten lengths and Lucette knitted. This was an Olympic standard pool but of an older vintage than the Edinburgh Commonwealth Pool; plaster was flaking off the ceiling. It was fairly crowded, but there were four lanes reserved for continuous swimming. The pool was deepest in the middle and shallower at both ends.

We had lunch in a Swiss restaurant called Gisella, opposite Vancouver Public Library, where we were picked up by the Tiffins at 3pm. They drove us across to North Vancouver, round various very pleasant housing estates set in woodland and on cliffs all along the coast to the north. There were several marinas in pleasant bays.

In the evening we returned to the Tiffin's house for a family meal with Gillian (16), Gwendolyn (11) and Cathlyn (8). We had another good look at the boat, including the mast (11in x 8in x 60ft tall, in a box). Don Tiffin has used 16 barrels of resin plus 16 barrels of hardener to build the boat, and has something approaching a full sized chandler's store in his basement

Monday 22nd March 1976

Got up at 5.45am. At 6.30am Jim Murray called for us in a large rickety green station wagon belonging to UBC. He then took us to his house to pick up Ev, and at 7am Don Tiffin. We sailed on the 8am ferry from Tsawwassen to Schwartz Bay. The trip took 1hr 40mins. After a somewhat lengthy queue for breakfast we found a table which gave us a fine view of the Gulf Islands on the starboard side – many ideal holiday cottages nestling in the woody greenery.

From Schwartz Bay we drove to Pat Bay Marine Station, now in the middle muddy stage of construction, with frenetic activity by dump trucks, concrete spreaders etc. Ultimately the Station was expected to accommodate 450 staff covering all governmental marine sciences, including 50 marine geologists and geophysicists plus 20 earth physicists to be transferred from Ottawa. At the time of our visit a wharf had yet to be constructed. The total cost of the complex was expected to be \$20 million.

After the Pat Bay visit we went to lunch in the Empress Hotel, extremely colonial English, Indian colonial English in fact. Thence we went to book in at the Embassy Motel near Victoria town centre. There is a rather magnificent centennial memorial near the Embassy Motel, with all the provincial flags, which I learnt.

In the afternoon went with Don Tiffin and Jim Murray to look over the Havedrill drilling ship, in dry dock. It was an impressively massive piece of machinery, being prepared for Arctic drilling in the summer of 1976 by welding on extra floatation tanks. It already felt pretty Arctic on the drilling platform in the breeze blowing at the time. Experimental work had been undertaken in the Arctic in the previous summer. Drilling was to involve a massive logistic exercise to keep the drill ships free of ice (by circling icebreakers) and provide a means of damage limitation from iceberg scour (by putting well-heads at the bottoms of 60ft deep caissons).

Other methods of Arctic drilling were from artificial islands and from thickened ice islands. Several very large gas fields had already been located in the Canadian islands by these techniques, but technologies for getting hydrocarbons from the fields had yet to be finalised.

We had our evening meal in a ship restaurant in Victoria. It consisted of the whole top part of a former island ferry, now chopped off and come to rest on dry land. Prices were surprisingly reasonable.

Tuesday 23rd March 1976

Got up at 5.45am and called the Murrays at 6.30am as requested in a note left last night. The motel cost \$18.90 for two. Caught ferry at Schwartz Bay at 8.00am. The car and four adults cost \$9 for a trip lasting 1hr 40mins. We had a good view of Gulf Islands from the ship's restaurant. Many are steep sided and uninhabited, heavily wooded. Houses have problems with water and sewage

We collected a large blue car (Chevrolet Monte Carlo) from Avis at Vancouver Airport, and I followed the Murrays and Lucette to R&H Travel to pick up new airline tickets. We had a light lunch (soup and pizza slice) with the Murrays.

Then straight east through Vancouver onto Route 1, which started as a first class motorway. When we cleared town there was rain, tops of hill and mountains in fog, a good deal of snow not far above us. The River Fraser was very muddy, and many deep wooded gorges cutting down below the road.

We stopped at Yale for coffee and orange fizz. This was the first village for some distance and our first sight of a frontier-type town – shacks, neon lights, car, garages, motels, no upkeep of verges. Upstream of Yale is the Fraser canyon – deep and quite impressive, with quite a few short tunnels through spurs. There were crumbling hill slopes of stratified gravel and rock above the road, which in places was protected by low concrete walls, and in other places the road margins had been over-spilled by lumps of rock. We stopped to admire some of the hard rounded pebbles in the gravel and have a look at the tufts of dry grey flowering scrub from the previous year.

Around the Fraser Canyon trees became rare and stunted, giving way to a deserted countryside of bare rounded hills rather like Scotland – grey and brown.

Cache Creek was another frontier town, but quite large – must have had 15 motels. All along the Trans Canada Highway are motels, restaurants (mostly of Wimpey type) and garages. After an check around, we had a Chinese meal, and stayed at Bonaparte Motel, which had been recommended to us by the Duffs. Room 7. Huge lorries with trailers and containers thundering through.

Wednesday 24th March 1976

We breakfasted on the complimentary coffee and biscuits provided at the Bonaparte Motel, then spent an hour or so looking round Cache Creek. I bought a \$13.95 tartan shirt from a rather tough backwoodsman type shop.

We travelled from Cache Creek to Revelstock, firstly through bare brown country with some herds of cows and one genuine cowboy on a horse. Farther east the trees gradually returned, first as scattered stunted pines, then gradually increasing to full scale coniferous forest.

Before reaching Revelstoke (“city population 6500, altitude 1499ft”) we climbed into Alpine scenery, with snow capped mountains and forest reaching part way to their peaks. Revelstoke itself is the Switzerland of Canada. It was under fairly thick melting snow at the time, except for the centre, which was clear. When we arrived it was misty, so only next day was it possible to see the surrounding mountains.

We stayed at the Revelstoke TraveLodge and had our meals at the adjoining Schnitzel Inn, where there was a very strong South German atmosphere. Whilst we were there a 25th wedding anniversary party was taking place, with mum, dad, kids and grandkid. The Revelstoke Town Hall was decorated with 1971 paintings of railway history and personalities on the outside walls.

Thursday 25th March 1976

Drove from Revelstoke to Banff across Rodgers Pass (4354ft) and the Kicking Horse Pass (5405ft). Plenty of snow on both passes but no blockages, although there were snow ploughs tidying up the edges in places. The most wintry of the two passes was Kicking Horse, with dry blowing snow and drifts three feet deep at a motel/garage where we stopped for coffee and petrol. We were told the snow would start to clear at the end of April. Just before Banff we met big horn sheep by the roadside expecting to be fed by passers-by, and we duly obliged.

At Banff we stayed at the Banff Springs Motel. Had a bathe in the Upper Hot Springs, a somewhat spectacular place with an inside pool connected below water to an outside pool in the snow. A glass screen separates the two parts down to water level. Banff Springs Motel is an enormous place with about 10 floors, built of stone and of the same vintage a the Empress Hotel in Victoria.. Clean, tidy and well laid out. There were fairly numerous skiers, but the place was not crowded.

After dinner we had a quick look round – classic piano music being played in one lounge, hot rock in another. We wondered how on earth Canada managed to produce adequate wealthy clientele to justify the capital costs, let alone the running costs, of a place this size.

Friday 26th March 1976

We went first up the gondola lift on Sulphur Mountain at Banff. At the top were magnificent views over glaciated terrain on all sides. Weather sunny but with dry snow blowing around a bit. Not too many people. We had lunch in the restaurant at the top.

After lunch we travelled from Banff to Calgary Airport to return our hire car and check in our heavy suitcases, then went by limousine bus (\$1.59 each) to Palliser Hotel, where we had a room pre-booked. Evening dinner was in a health shop below the Husky tower. The shop had a couple of ‘snack’ booths but Lucette and I were the only customers. We were impressed by the concrete wealth much in evidence in this part of Calgary – tastefully displayed though. The Saudi Arabia of Canada.

Friday 26th March 1976

We flew from Calgary to Toronto on an Air Canada Lockheed 10-11, which looked suspiciously like a Tristar. We took off at 8am in bright sunlight, the jagged white line of the Rockies gleaming not so far away, and the Husky Tower prominent in Calgary as it receded. The ground at first brown and barren looking, divided into those rectangular fields. There were quite a few small lakes, with ploughing marks oriented round the sides of some – others may well dry out later.

We soon found ourselves over riverside swathes of ‘badland’ topography, some of them extensive and spectacular. The pilot announced River South Saskatchewan, which was meandering and looked frozen. About here the scattered patches of snow increased and became semi-continuous to the east. There were more fields and some uncultivated areas, all looking fairly flattish though.

We passed directly over Winnipeg, which we did not see, then recognised the bend between two straight sections of the Trans-Canada Highway, just east of the town. About here the rectangular fields gave way to wooded rocky snowy scrubland, with the southern outline of the Lake of the Woods clearly defined. The next thing we saw was the south end of Lake Superior. We were on the starboard side of the plane, those on the other side were able to see Thunder Bay. Lake Superior was pretty big, with nice swimmable-looking bays.

Toronto had 15°C and weather which varied from overcast to torrential rain during the four hours we were there. We were not tempted to make a quick sortie to have a look at the town, as we (I) had half intended. The final leg of our trip was by BA 707 to Prestwich via Montreal. We soon climbed into the blue above Toronto’s clouds, but fifty minutes later were plunging down through darkness to a brief stop in Montreal..

Our final view of North America - the lights of Montreal.

15 (c) AUSTRALIA 1976

Our visit to Australia in 1976 was initiated by an opportunity I had to attend the 25th International Geological Congress in Sydney as a UK Geological Survey delegate. This covered only attendance at the Congress, but the temptation to have a look at the Great Barrier Reef on a post-Congress excursion was too great to be resisted.

Friday 13th August 1976

We left Heathrow at 8.15 pm yesterday aboard a BA 747 but saw nothing of the world below until we were wheeling over the Persian Gulf preparing to land at Bahrain, offshore of which we could make out a fair number of brightly lit ships revolving in the darkness round the end of a wing.

We had a short visit to the transit lounge of Bahrain’s fairly modern but distinctly limited airport. A few tourist junk shops and a bank were open. A silver teaspoon cost the equivalent of £2.70. There was a largish transit

group of what seemed to be Oriental troops, mostly smoking phlegmatically, all dressed very smartly in new civilian clothes and boots, but without insignia or badges of rank. There were also a good many Middle Eastern gentlemen sleeping on seats and tables, plus a few khaki and red clad police looking a bit self-conscious.

After 45 minutes we were glad to escape from the 34° heat and find ourselves back in our air-conditioned plane, now with a new crew. The sun was just appearing behind a palm skyline as we departed along a runway which proved to be bordered by dry scrubby growth with much bare sandy soil. Beyond a few miles of misty blue sea lay the coast of what I took to be Dhahran, hazy, with two groups of about six tall chimneys. The Persian Gulf appeared grey, cool, hazy, merging into peachy obscurity at the horizon, and overlooked by a pale blue sky.

We believe we crossed the coast of India in the vicinity of Madras, but saw nothing of the ground until we glimpsed the Nickobar Islands to our port side – entirely dull green and with a wavy indented coastline. 35 minutes before Singapore we banked to starboard and - as the plane levelled out - low, darkish grey mountains protruded from the misty whiteness far below. This must have been the spinal range of Sumatra.

As we landed at Singapore there was a general impression of greenery and palm trees, some jungle, grass, plantations with trees in rows, red soil. We flashed over what looked like gravel workings. The air terminal was of moderate size, with a dozen small shops. All the staff seemed friendly and, unlike Bahrain, the building was air conditioned.

Our stay was brief. At 6.50 pm local time we took off southward into a rapidly descending dusk, across the skyscrapers of the downtown area. Glimpse of red and gold sunset laced with dark clouds. A large fleet of cargo vessels anchored just offshore.

Saturday 14th August 1976

Arrival in Perth just before midnight was low key. From the air it looked like any English town – rows of lights and roads glistening with rain. Temperature 15°. Before we left the plane we were subjected to a ‘light’ spray (attendants walking down aisles squirting spray cans in both directions at once, above their heads, one can in each hand). We were then provided with umbrellas to walk the few yards to the yellow brick terminal building, where we were ushered into an upstairs transit lounge whilst the aircraft and our luggage received a ‘heavy’ spray.

At 6.35am we came into Sydney from the east, across a rough Scottish-looking sea, landing on a runway which projected into the waters of a bay. An hour and a half later we arrived by taxi at the Crest Hotel in the King’s Cross area of Sydney and were allocated room 905. The weather was sunny but the temperature a miserly 4°. From room 905 we had a good

view towards the city centre to the west, including the Harbour Bridge, the Opera House and the downtown skyscrapers. We went to bed.

At 4.30pm we got up for a walkabout. We first discovered that Kings Cross is the Soho of Sydney. Then walked down William Street to see Captain Cook in Hyde Park, his raised finger pointing to the sky – ‘discovered this territory 1770’. Then had a quick look at the Anzac memorial, and back to a continuation of William Street called Park Street. We walked through to George Street (Town Hall), then round up Market Street and Pitt Street, and back again along William Street. In the process we passed Centre Point, above which is being built a sort of ‘Post Office tower’ – not yet complete – and a shopping precinct in the lower levels of the Sydney Hilton (rather like that below the Calgary Tower but somewhat less so). Had a 9pm evening meal in a small Italian restaurant in Kings Cross.

Sunday 15th August 1976

First of all we got up rather late, then went to register at Sydney University, walking all the way. Then back per two buses to drop all our numerous documents at Crest Hotel, quick turn round and bus back to town centre. We caught a train at Wynyard out to Hurstville, where we were picked up by Margaret Schnoll and taken to the Schnoll household at Conaught Point for dinner. Eventually Malcolm Schnoll brought us back to the Crest Hotel by car.

The Schnolls were a family we had known vaguely in Bonaly a year or so earlier, and it was Judith Mickie, their neighbour, who had prompted us to contact them. It turned out that Lucette was embarrassed that we had done so on such slight acquaintance – however, they received us graciously. He was a doctor. Their Sydney house was on top of a sandstone bluff overlooking the Georges River, which runs into Botany Bay, and with it was a rocky garden extending down to the water’s edge. Mangroves grew in the mud at the bottom and bananas, which we were told did not ripen, half way up the slope. Malcolm Schnoll proudly showed us his collection of flowers – several varieties of mimosa, a solitary paw paw, which was a curiosity not expected to fruit. Lemons ripening, also a small bitter tangerine-like fruit. There were grapefruits along the road, and flowers such as azalea and camellia. I noticed one dandelion. A blue convolvulus was considered to be a pest.

The house was split level, with a fine view across the river. There was boating but no swimming – too muddy and there was a fear of sharks. Richard (19), Cathy, Jamie and Stephen (?6). Richard produced his skin diving gear, of which the gun looked pretty ferocious, as did the fins.

Monday 16th August 1976

The first event of the day was a call from a gentleman called Mr Laws, a remote relative of another of Lucette’s Scottish pals, Mrs Jenkins. We had been charged with delivering a wedding present from her to the daughter of Mr Laws, but it turned out that the daughter was not getting married, just living in sin – a relatively new phenomenon in 1976. The present was

delivered all the same, but its delivery was regarded as another embarrassing incident. Mr Laws, however, was very pally – he was an importer of Japanese textiles.

This was the day we found that Sydney buses are difficult to use – lots of different numbers on them but no very clear indication as to which goes where or starts from where. Circular Quay is a major bus terminus with unmarked stands, but we eventually discovered that buses for Kings Cross leave from the NW corner, which carries no indication that it is even a bus stop.

The 25th International Geological Congress was opened in the main hall of the Sydney Opera House in the afternoon. We had excellent seats in the middle of row C, and plenty of time to admire this impressive building into which has gone a lot of three-dimensional thought. Lots of fluted wood, and wood-type laminate flutings streaming down on all sides in the ceiling and auditorium. I was impressed by lights from the circular ceiling shining on plastic rings above the stage.

The opening was preceded by an organ recital. Then a practical speech from HH Fisher, Chairman of the Organising Committee. Next, the formal opening by Sir John Kerr, Australian Governor General, a floridly confident Australian lawyer looking like a younger Lord Cameron. Then an extremely boring speech from a gentleman of name unknown and concerning a subject forgotten – I had difficulty in keeping awake. (It was PH Abelson, President of the IUGS, on ‘Recent Advances in the Geological Sciences’.)

In the evening we went to a buffet dinner cum sherry party at the Australian Jockey Club at Roundwick. Two very large rooms very full of people. View from top of racecourse stand toward the airport, with planes coming in to land every few minutes.

Tuesday 17th August 1976

I attended five lectures in the morning, ranging in quality from good to hopeless. There was a reasonable degree of international muddle and language difficulty, but nothing sensational. During the lunch break we sat in little groups on the grass – green grass – outside the Carslaw Building. Warm breeze, temperature around 20 degrees, shirt sleeves, pleasant. Meantime Lucette went on an eight-hour excursion arranged for Congress families.

In the evening we went to a concert by an Australian youth group in the Music Room of the Opera House. This was a smallish room with wood laminate décor and in the theme of the main auditorium, but much more modest. Prior to the concert we had a quick meal in the Opera House restaurant, cost \$7.90 plus \$1 for a carafe of wine.

Wednesday 18th August 1976

Jim Robbie, my predecessor as AD Scotland, plus his wife, had by now appeared in Sydney, and Lucette spent Wednesday with the wife. I attended a number of unremarkable lectures.

The main event of the day, however, was an evening meal with Judith and Martin Jones in the Terrace Restaurant of the Crest Hotel. Martin Jones was an earlier next door neighbour in Bonaly Terrace, and Judith his Australian wife. He was a computer whiz kid. They had come up from Melbourne, where they were based. The meal turned out to be fairly alcoholic and fairly expensive, but the company was enjoyable. Memorable.

Thursday 19th August 1976

We received from Judith and Martin a large bunch of big, exotic and colourful Australian flowers, which graced our hotel room for the next few days in souvenir of yesterday's meal

This was the day Lucette went on a much appreciated cruise to Palm Beach and Watson's Bay to the north of the city. Lunch was provided on the boat.

In the evening we went with Austin Woodland, then Director of the UK Geological Survey, and Bob McQuillin, an Edinburgh geophysical colleague, to a performance of Mozart's opera 'Il Seraglio' by the Australian Opera at the Opera House.

Friday 20th August 1976

Lucette went on a morning cruise of Sydney Harbour with Mrs Robbie. In the afternoon we firstly walked extensively in the Botanic Gardens, then went to look at 'Opal Skymine', an opal shop on Level 6 of the tower in Australia Square. We then took the lift to the top of the tower for the view.

For our evening meal we camped in our bedroom using my diving knife as cutlery.

Saturday 21st August 1976

Me being a coalfield geologist in one of my earlier manifestations, we went on Congress Geological Excursion B18 to the Southern Coalfield of New South Wales, visiting Port Kembla, Wollongong and other coastal localities. There was brilliant sunshine all day. I touched briefly on one of my other manifestations by collecting four ormer shells from scuba divers at Red Point, Port Kembla.

Our evening meal was taken in a small restaurant on the other side of the road from our hotel. Lucette had steak Diane and didn't like it, but there was a rather fine banana split.

Sunday 22nd August 1976

We went on Excursion B22 to River Nipean, Blue Mountains and NSW Mines Department Bore Core Library at (or rather, near) Richmond. Leaders were Val Gobert and Mich Neville. Our bus was only half full.

We travelled out along a road with several dozen used car lots to Parramata, then through open country as far west as Hawkesbury Lookout on the Blue Mountains beyond the Nepean/Hawkesbury River. Poplars in rows, leafless; orchards of laden orange trees; brown standing maize, some just harvested, eucalyptus scrubland; paper bark trees; scribbly gum trees; cabbage tree palms; black Australian swans.

We had a very pleasant Australian outback barbeque lunch with wine at the Core Library and returned to our hotel at 6pm, an hour late. Opted for a light meal at home. During the trip Lucette made a Russian boy friend.

Monday 23rd August 1976

I gave my scheduled lecture in the morning, and afterwards endured one by Bob McQuillin, whilst Lucette sat at the back of the lecture theatre. The lectures were in the Merewether Building, but afterwards we had lunch with colleagues Austin Woodland and Harry Wilson (District Geologist Northern Ireland) in the Wentworth Building.

After lunch we went on Excursion Z02. The Rocks, Circular Quay, Woolloomooloo, Garden Island, Rushcutters Bay, Rose Bay, Vaucluse, Gap Park, Dover Heights, Bondi (pronounced Bonday) Beach, Paddington. Surfers on Bondi Beach; high steep sandstone cliffs at Sydney Heads. We went into Vaucluse House, home of Governor Wentworth, who produced Australia's constitution.

In the evening we had an arranged visit from Douglas and Molly Law and spent a pleasant hour with them in our hotel room.

Tuesday 24th August 1976

This was another day spent mainly listening to lectures, but the Congress was beginning to fall to pieces. Quite a few lectures were either cancelled or their timing altered without notice. I got stuck in an hour-long dissertation on the geology of China delivered through a not very competent interpreter.

In the evening we went to an Auld Lang Syne party at the Australian Jockey Club. Plenty of Australian champagne. We spent much of the time with recently retired colleagues Geoff Kellaway and the Robbies.

Wednesday 25th August 1976

We attended the closing ceremony of the Congress in the rather pleasant Great Hall of Sydney University, reputed to be a two-thirds scale copy of Westminster Hall. Proceedings began with an organ recital, starting with 'The Trumpet Voluntary'. A highlight was a speech by the Rector.

After the ceremony we returned for a final cup of coffee in the Hospitality Centre of the Carslaw Building, then went into the town centre for a final look around. We started with a second visit to 'Opal Skymine' in Australia Square, where we finally acquired two opals for Lucette. We then had a fruit salad on the fountain wall in the Square. Finally we went to Cadman's Cottage in Sydney Cove and to Centre Point, where we purchased a kaola bear for Lucette.

As the TAA bus left town for the airport en route to Brisbane, a steady drizzle set in - the first serious rain since our arrival in Australia. There was also a coldish wind. We were said to have been lucky with the weather. Mostly we had warm sunshine in Sydney, with daily average maximum temperature around 25°, nightly minimum 12° – the first and last days were colder.

Impressions of Sydney were mostly favourable – a clean, modern, friendly and civilised post-war boom town. The concrete jungle seemed relatively tame, with interesting open spaces and (very) warm temperate vegetation both indoors and outdoors. Cabbage plant and rubber plant trees were much in evidence. Everybody was very relaxed, even the bus crews in potentially harassing situations. No hand baggage check at the airport for domestic flights. The Congress officials were also relaxed – to a point bordering on inefficiency at times. The general impression, though, was of a competent, mature and classless society, very sure of itself without being aggressively so. People seemed aware of the limitless space and resources available to them, although they were not without problems brought on by the high standard of living on which they were insisting.

Prices in Sydney were mostly above those of the UK. Cup of coffee 35c (5/), large apple 15c (2/-), 20 exposure Kodachrome \$5 (£3). Steak was noticeably cheaper (10/- lb). House prices commonly ranged up to \$160,000 (over £100,000) but salaries were proportionately higher.

Our DC 9 departed straight out over Botany Bay, with the Georges River clear to the south. We banked steeply over the centre of the bay and then glimpsed its southern headland, the first landing place of Captain Cook. We could see sandy beaches immediately inside the headland, a bit of greenery on its end, and an extensive tank farm not far to the south. Sydney had a 10-mile wide belt of heavily built up suburbia around the skyscrapers of its downtown area, but outside the suburban belt habitation became pretty sparse, with dairy/fruit farmland and uplands of eucalyptus forest.

Later we could see the sprawling extremities of an extensive town around inlets sheltered by a long bar-beach with breakers – almost certainly Newcastle – glimpsed through breaks in the clouds.

At 7pm we arrived by taxi (\$3.40 from airport) at the Terrace Hotel in Brisbane and installed ourselves in Room 407, where we soon discovered that neither the door nor the sliding window would shut properly. Dinner was in the tenth floor restaurant of the hotel, which had a magnificent view over Brisbane town centre. The meal lasted 2.5 hours – oysters, paella, green salad, bottle of white wine. Very enjoyable, although I was slightly shocked by the price of \$26.25 (£18.75) for two..

Thursday 26th August 1976

We had a modest breakfast in our room. (Two biscuits saved by Lucette from the free issue on yesterday's plane, plus complementary coffee made with one of those electric jugs which do not exist in England).

Most of the day was spent in looking round Brisbane. We walked to King George Square and the surrounding shopping area, then to the Botanic Gardens. We spent some time in the Gardens, which were opened in 1866 – Australian black swans on lake, large stands of bamboo with names scratched on the canes. A friendly bus driver took us to see the new Victoria Bridge, flying over a complex of roads built actually in the Brisbane River.

After lunch we returned to our hotel where Lucette, exhausted, had a snooze, but later we went for another – more gentle – stroll in the suburbs. In the evening we met up with our fellow members of Congress Excursion Number 6C - Great Barrier Reef, had dinner together and an introductory talk.

Friday 27th August 1976

We left Brisbane on a chartered Fokker Friendship plane at 9.40am, en route to Gladstone and then Heron Island. For around two hours we flew up the Queensland coast at a height of 500 to 1000 ft, keeping below the patchy cloud base.

Mostly we were seeing eucalyptus wilderness, varying from heavy woodland to semi-scrub. There were some steep yellowish cliffs, and large areas of blown sand more or less stabilised by the trees - but with a few blow-outs back from the wide sandy beaches. Mangroves along the shore and some beach mining. Wide areas had no visible habitation, then a few townships, fields and orchards. We saw one small fire smouldering in the undergrowth and one blackened burnt out area with the larger trees unscathed.

Eventually we left the coast behind at Rooney Point and headed out to sea more or less in sunshine, with scattered clouds. Our first coral island on the right was Lady Elliott Island, following which we circled Fairfax and Lady Musgrave Islands, photographing furiously. We circled Heron Island, then headed to Gladstone via North-West Island. We had had a general impression of emerald green reefs up to six miles across in a dark blue sea, with tiny wooded or sandy islands in places. Each had an outer rim of waves, algae, radial coral growth, and inner areas of pale green sand with darker reefy blotches.

At Gladstone we transferred by bus from the plane to two boats, of which we were in the larger – about 45ft - with the luggage. Our first mini-adventure occurred off Gladstone, where with a sort of gentle tilting swoosh we ran onto a sand bar and had to back off, colliding with a lighter in the process and leaving a nasty bash on its stern quarter. We then proceeded for around an hour along a passage between the coast and

Facing Island – a sort of wooded bar. Murky milk-green water, warm sunny weather. Pleasant.

This, though, was but the prelude to a somewhat traumatic experience. At about 2.15pm we cleared the shelter of Facing Island and began a heavy rolling progress which did not ease off until half an hour before our arrival at Heron Island at about 8pm. We lay down on the deck in the stern where things weren't too bad and were able to jam ourselves into a reasonably secure position. My main worry was that the luggage might slide over the open stern (which fortunately it did not).

The pale blue sky and dark blue sea eventually gave way to what in other circumstances would have been a rather pleasant subdued sunset of an apricot-lemon colour, and this to complete blackness with swarms of very bright stars. The moon was there – crescent and lying on its back - rising and falling as the boat rolled inexorably on, also the Southern Cross and the Milky Way with its darker patches.

The rolling progress was not in fact all that inexorable, in that around sunset the engine broke down and we wallowed for about an hour, with occasional efforts to re-start, which quickly petered out. However, eventually a slow creep in the right direction gave way to a steadier movement. In the meantime we contemplated the possibility of rolling about all night in these reef-strewn waters with a crew which was impressively inefficient. Not to put too fine a point on it, the boat was in as shambolic a condition as many British boats, so at least it was like home.

In due course, and when most of the prostrate passengers had mentally adjusted to the idea that the situation was permanent, two small lights appeared on the starboard bow, one above the other, and it became apparent that they marked the approach to Heron Island. The run-in took another three-quarters of an hour or so. Our progress reduced to a crawl and it was clear that the helmsman was having some difficulty in keeping the lights in line, no doubt part of his general marine difficulties. We passed a wreck on our port side, one we had seen earlier from the air, then some marker poles. Large patches of luminous green coral were much in evidence below the boat as we edged past the wreck.

Finally there was a heavy jar, much more solid than that on the sandbank at Gladstone. We had arrived. We were transferred - over the stern - into a small aluminium boat for the last 50 yards to a coral sand beach. As we approached the beach, the crewman in the bow jumped overboard to steady the landing and promptly disappeared head over heels below the bow in the surf. He was lucky to avoid being crushed.

Our welcome was less than organised, although the unfortunate lady cook was vainly trying to dispense soup whilst the accommodation chaos was being sorted out as best possible.

Saturday 28th August 1976

It was windy most of the day. Warm in the sun, but a good deal of broken cloud in the morning. Weather not too bad on the whole but could have been better. A pleasant day, though, which can be divided into five phases:

Phase 1. With three others (two were American old girls) I was towed out clutching a rope trailed behind a wee motor launch, across the reef platform to the reef margin west of Heron Island. It was quite a long tow and not all that warm – I was exceedingly glad I had decided to wear my wet suit top. There was spectacularly luxuriant coral growth on the western drop off, with large numbers of fish, including large ones, especially round a big block of coral rock. Lucette sat in the bow of the wee boat and Charles Phipps drove it. Eventually we all clambered back aboard and returned to the harbour area.

Phase 2. We went out again in a 15ft launch referred to as 'The Hercules', driven by Peter Flood. We snorkelled and photographed in ten feet of water at the edge of the Deep Lagoon, about 3km east of Heron Island. Clumps of varied coral in quite good condition. I had to borrow Peter Flood's weight belt for the photography.

Phase 3. After lunch we walked out north through the shallow water of the reef platform to the reef rim. We walked out along one of the radial scour channels floored with sand, coral flats projecting up about 0.5m on each side. The level of the coral flats is controlled by low water level in the lagoon. At the reef rim was a spread of heaped-up coral fragments ripped off the coral pavement by hurricane Emily in 1972. Charles Phipps, one of the excursion leaders, later told me that this exposed some very hard underlying reef material, which he believed to be Pleistocene in age.

Phase 4. Lucette and I walked round the island and looked into its undisturbed interior vegetation in places – open woodland with undergrowth. There were quite a lot of birds, including white-capped noddy terns, which croak and squawk around the camp all night, silver gulls giving a menace display, bar-shouldered doves. We collected bits of red tubipora coral on the beach, and I concluded by walking out to the wreck by the harbour entrance. It is a steel twin-screwed ship full of coral rock, and was apparently towed there to make a breakwater.

Phase 5. After dinner we visited the camp museum and library, had a lecture on the reef in the camp lecture room, and finally Lucette and I went to have another look at the beach in the dark, in the company of the Milky Way and the Southern Cross.

Sunday 29th August 1976

At 9.30am I sailed on motor launch 'Escape' with most of the excursion geologists to see the work based on a research station on nearby One Tree Island.. I left Lucette on her coral atoll, which gradually receded astern as the green of its reef became a thinner and thinner line separating pale blue sky and ink blue sea.

As One Tree Island was on the far side of a reef-ringed lagoon, Escape had to anchor outside the reef rim and dispatch Peter Flood in the boat's dingy to advise the research station warden that we were needing a launch to transport our party across the lagoon to the island. In the waiting period, scuba diving commenced in conditions which I can only describe as hairy, although the water depth was no more than 30ft. I twice went down the anchor line to a sandy sea bed, but the strength of the current dissuaded me from leaving the anchor to examine the reef front, particularly as I knew there was no support dingy available. Australian divers seemed not to bother about diving in pairs. Several of them did go to the reef front, though, and reported that it was spectacular, but two were swept away by the current and one had to be rescued in choppy water at a considerable distance from the boat when the dingy returned.

The research station launch turned out to be a high speed power boat, and as the tide was still quite high it transported us at an appropriately high speed for about four miles straight across the lagoon to the island, skimming perilously closely above the tops of numerous coral micro-atolls (bommies) as it did so.

After a sandwich lunch I walked half way round One Tree Island, then cut across the middle. It is about a quarter the size of Heron Island, is surrounded by coral gravel storm beaches and indeed the whole island appears to be made of coral gravel.. In the middle is a brackish water lake and a stand of trees containing the nest of a sea eagle, with a notice stating that it has been occupied since 1841.

The warden in charge of the station was Ken, exceedingly suntanned, and his wife Jane, equally suntanned., in sole possession of a small group of huts and their power boat. They were looking after experiments left on the reef by visiting research students. After my walk I had a good photographic snorkelling session in a channel variously called 'The Gutter' or 'The Cut', full of flourishing corals – blue, pink, yellow, brown, together with schools of multi-coloured fish.

Later, we again boarded the power boat and had an even more hair-raising ride back across the lagoon. The tops of the bommies were now awash, and it was necessary to steer round them at speed. The bommies were stated to have vertical sides up to 30ft tall, and some must have been 100ft across.

We landed on the inner side of the reef rim, on a steep mound of loose coral shingle which tended to collapse as we offloaded all diving and other gear. We then had to walk about 100yards across a flat of coral debris cemented by algae, where Peter Paget and I met two loggerhead turtles struggling through shallow water towards the open sea – I photographed him holding one of them.

The dingy of Escape needed to make four trips to collect the party from the reef rim, landing precariously on an overhang of solid coral rock above a near vertical cliff falling into deeper water – quite a perilous operation with a slight swell running. This made three hairy operations in one day, and Lucette had been well advised to stay behind on her island paradise.

We arrived back at Heron Island at sunset and had barbequed fish for supper.

Impressions of Heron Island? A huge huge living community made from the sea and living on a vastly greater pile of corpses, clean respectable corpses turned into rock, and surrounded by a sea which reduces its size and significance to nothing.

*The island itself was a green open forest, with three main types of tree: ones with broad sticky leaves a bit like a horse chestnut, presumably *Pisonia grandis*; palms with prop roots, presumably *Pandanus*; and trees with loose filament-like leaves.*

*Birds in evidence included Banded Land Rails (pretending to be chicken), Bar Shouldered Doves (pecking about the camp site), quarrelsome Silver Gulls, very noisy squawking White-Capped Noddy Terns, Silver-Eyes (greenish finches of which I saw only one, pecking daintily at an apple core), and Reef Herons, both white and grey. There were many nest burrows of Wedge-Tailed Shearwaters, empty at that season, amongst the *Pisonia* trees. Masses of bird droppings on the *Pisonias* were trying hard to turn into guano.*

*I found study of the variety of marine life frustrating without an adequate compact guide book, but the following seemed OK: *Acropora*, Stag Horn Coral (growing in a large spread on the reef flat near the wreck and surviving with around 9in exposed at low tide), Clams (with blue mantle edges), yellow *Favites* or Honeycomb Coral, *Pocillapora* (pink and bluntly branching), *Linkia*, a large blue starfish (one only – at One Tree), huge black and yellow *Holothurians* of which one had a soft knobbly skin, a Shovel-Nosed Shark (fleeting glimpse of a yard-long one as we left One Tree), Blue Spotted Sting Ray (hiding below coral colonies of One Tree), brilliant green tufts of Turtle Weed. The water level in the lagoon, held up by the reef rim, is critical to coral growth, but blasting of the channel to make the harbour was stated not to have affected it too severely.*

Monday 30th August 1976

*We got up at 3.45am for a 4am breakfast, although we were allocated to travel back to Gladstone in the *Attula*, a faster and therefore later-starting boat than *Escape*. At 4am the stars were still brilliant, but eventually dawn came up apricot rose with a line of low cotton-woolly clouds above it. Otherwise the sky was clear and for the first time no wind.*

*It turned out that *Escape* was not to make the planned very early start, becoming stuck broadside-on on a sand spit in the channel just inside of the wreck. With strenuous effort it was able to move back and forwards by a few yards, but could not swing off a sand bar amidships. Pulling with lines and a launch did not help. Finally *Attula* was towed out past *Escape* and we boarded her by launch, but as *Escape* was freed with the assistance of a tractor soon after our departure both boats left together at about 7am. I wondered a bit about the condition of *Escape*'s underside.*

After a couple of hours Escape had disappeared astern. We had a cloudless cobalt sky merging to milky blue at a sharp horizon. Sea the colour of blue-black ink. At one stage half a dozen dolphins were jumping on our port quarter, 100 yards away, in the bow wave. We passed Erskine Island – small and mostly yellow-white sand, but with some green vegetation in the central part. Then Masthead Island – long and covered with green woodland, with no signs of habitation but an orange tent and a few figures nearby.

We reached Gladstone at just before 11am and were told the bus to the airport was to depart at 2pm. This resulted in our party dispersing around town. Lucette and I were in Woolworths when we received a message that we were to rejoin the bus as soon as possible, as there had been confusion between Island Time and Eastern General Time. The last group to rejoin was the French contingent, eventually retrieved from a restaurant.

Our departure to Bowen was, as before, in a chartered Fokker Friendship. We saw again the rows of anchored yachts along the river at Gladstone, then flew up the coast to Mackay (pronounced Mack I) over alternations of eucalyptus forest, more sparse than farther south, and mangrove swamp, with salt marsh in the estuaries. Little sign of habitation over wide areas. On landing we refuelled without leaving the plane.

Mackie was another bungalow town like Gladstone. From there we flew out, in bright sunshine, to Square Reef and other reefs, circling over several. They consisted of huge green expanses with strong tidal rips in many places between and over them. They tended to have blotchy reefy central areas and sharp spectacular sides. No islands, though, although there were several rocky islands farther inshore. A few boats were anchored in sheltered positions.

Approaching Bowen the countryside was brown, but with many green orchards. Green bananas hanging in bunches. Ripe coconuts on the palms. We arrived at Bowen at about 4pm and dispersed per bus to hotels. Lucette and I ended in the Club Hotel – a wooden wild-west place with balconies all round and rows of overhead fans, but not particularly well endowed with contemporary comforts. The whole of Bowen looked to us rather like a cross between Diego Suarez and the wild-west, with wide gravel streets and bougainvillea in flower in the central reservations, low widely spaced buildings, and shops selling riding gear.

We walked round the block after dinner. 43 were killed in World War I, 25 in War II. Stone Island was for sale for \$179,000, reduced from \$250,000, three bedroomed houses for \$30,000 (£21,000), a 6-acre mango farm for \$20,000.

Tuesday 31st August 1976

This was to be a busy day of travel northwards, with stop-offs. We got up at 6am and arrived at Bowen harbour per bus at 7.30am. There we transferred to the diesel yacht Belina for a short trip out to anchor in a bay of Stone Island. We were transported by launch to the beach – sand,

mangroves with coarse coral rubble behind, grassland. Sand dollars on the beach and storm damage visible in the mangroves.

We returned to the Belina per a dory with glass boxes for undersea viewing, then snorkelled around the boat. I managed to distinguish 16 distinct varieties of coral and photographed many of them. Only to Brain Coral, Staghorn and Favosites could I put even tentative names. The snorkelling was followed by an excellent chicken and salad lunch on the after deck of the Belina.

Then return to Bowen and bus to airport. It had been rather cloudy all morning and at Bowen there were a few small spots of rain. This was stated to be unusual, the wet season being around Christmas.

At Bowen airport we boarded another chartered Fokker Friendship for a flight to Townsville. We passed over a good many deltas with mangrove swamps and zoned saltings, but in the valley around Ayr was intensive cultivation in green rectangular irrigated fields. There were also large areas of brownish grassland with scattered eucalyptus clumps and greenery only along the meandering rivers.

Townsville proved to be a town of square laid-out roads and large numbers of bungalows, all looking the same size and set in neat square gardens. There was a nice looking salt marsh just before the end of the runway and a castle hill in the middle of the town. We did not remain long in Townsville, but time enough to notice two policewomen clad in pale blue and looking like nurses, also several clean well-dressed aborigines waiting to board the plane to which we transferred - a scheduled DC 9 flight to Cairns. As we flew at 16,000ft and mostly above two levels of cloud, little was visible of the ground on this part of our travels.

We did not see much of Cairns in the evening, but it was clearly a substantial little town. Population was stated to be 35,000 but it seemed to be more. It was laid out in the same rectangular street pattern as Bowen, but much farther advanced in that roads are fully made up and built up, with continuous shopping arcades two or three stories high.

We stayed at the Hides Hotel, in the \$20 per night (for double room) category. We had a standard motel-type room with bathroom and TV, but our outlook was directly onto a multi-storey car park, and there was a loud air-conditioner type noise coming from somewhere outside. It was a good job we did not stay long, just for dinner, briefing in a chairless conference room, and next day a 5.45am departure without breakfast.

Wednesday 1st September 1976

From the hotel we moved in pre-dawn darkness to the 63ft 'pleasure cruiser' Osprey, which was to be our home for the next few days. Dawn came up 'with fingers grey' revealing still waters, a sky with 30% ragged cloud cover, and a ring of green hills – nearly mountains – encircling the town on all sides except to seaward. We sailed at 6.30am.

The Osprey was in fact a fast motor cruiser, 5ft draught, capable of 22.5 knots, geared up with yard arms for sport fishing, on this occasion with 9 passengers and a crew of three (Ron - the captain, Cathy - the blonde cook, Noel - deckhand), with fitted teak furniture, white leather seats, on hire for \$400 per day and owned by a young American couple called, I believe, Inglebert. From this point onwards the members of Congress Excursion 6C were split into two groups – those aboard Osprey, with Charles Phipps – a senior marine geologist at the University of Sydney - as party leader, and the remainder aboard the Tropic Queen, a larger slower boat which Charles Phipps eventually chose to leave behind to its own devices. The Tropic Queen party was led by Dick Orme, a much more dedicated geologist than Charles Phipps, and one whom I had known in the fifties, in Derbyshire. He had become an Australian academic.

As Osprey proceeded northwards she was followed by a 1.75m high, V-shaped wall of green water boiling over white at the crest. In shallow water this bow, or rather stern, wave was succeeded by up to eight smaller waves, of which the first three also had breaking crests.

At 9.30am, after breakfast, we dropped anchor at the north side of Low Island, and stayed there until 2.10pm, first being taken ashore by a Zodiac-like Avon inflatable, then walking on the island and snorkelling from the beach and from Osprey. Low Island was a sand cay with a lighthouse set in a tangle of coconut palms and other greenery. There was a large patch of mangroves of two varieties (red ones outermost), and a reef with an algal flat and two distinct coral-shingle rims. We encountered many sting rays about a foot across, and many large clams, including some amongst the mangrove roots. Underwater visibility was around 30ft. There was colourful life, not too many fish but a lot of soft corals and sponges. I saw single corals up to a foot across.

As we belted up the Queensland coast followed by our V-shaped wall I was wondering what sun, sunburn, sea air and snorkelling would do to a cold which I had acquired and which had decided to become distinctly in evidence. We cruised close inshore past Cedar Bay, with low wooded Hope Islands to starboard, Cape Bedford and Indian Head faint in the distance to the north. The coast was of steep heavily wooded greenery, with coastal flats, sandy beaches and palm trees in some little bays; not a sign of habitation - the area is probably accessible only from the sea. Mountain tops shrouded in cloud. Endeavour Reef lay away beyond the Hope Islands. These were the waters through which Endeavour sailed to beach at Cooktown for repairs in 17??.

Small white groups of two to six Torres Strait Pigeons were flying low across the water from the mainland, where they feed, to the islands, where they roost.

Thursday 2nd September 1976

We started the day anchored in a small bay on the NW side of Lizard Island, with the Tropic Queen around 100 yards away, plus another half dozen luxury motor launches; every one of them the obligatory white in

colour. Lizard Island comprised three ridges, the central one quite small. There were patches of bare granite on the sides of the ridges. The northern end of the island was mostly covered with greenish brown grass with scattered clumps of trees, merging into woodland at the NW corner.

Most of the first part of the morning was spent snorkelling in a nearby bay, a feature being a series of caves running in from a sandy seabed abutting against the fringing reef at a depth 25 ft. I encountered a clam about 3 ft long, with an exhalent orifice around 2cm in diameter.

Lizard Island Lodge, just inshore of the bay where we anchored, has its name writ large on its roof, and at 12.45pm we went ashore through the gardens of the lodge to the end of the adjoining airstrip. Sure enough, in the grounds of the lodge we met a one-metre long lizard sitting on the grass anxious to be admired and photographed.

At the airstrip we joined a light aircraft piloted by a Captain Lyle Cook, for an aerial tour of part of the Barrier Reef. We flew out to the Outer Barrier, starting at Ribbon Reef and travelling northwards, doing a couple of circles en route, to Day Reef. The line of the Outer Barrier was marked by an impressive line of white foam stretching to the horizon in both directions and backed to the east by the pale brownish green of the reef flat. Embayments marked the positions of the passages. Behind the line of reef flats lay the delicate blue of the lagoon, dotted with circular micro-reefs (bommies). The drop-off looked steep, near vertical, at the passage sides and to seaward, but less so towards the lagoon.

Lizard Island has a ruin which we did not see, the former home of a Mrs Watson. When attacked by aborigines in 1883 she put to sea with a child and a Chinese servant in a tank used for cooking bêche de mere (sea cucumbers). They landed on another island where there were also aborigines and had to put to sea again, eventually dying of thirst. Mrs Watson, however, was able to keep a diary detailing their adventures, and this is now preserved in a museum somewhere in Australia.

Following our aerial tour Osprey set off on what was to prove to be the first of a number of fishing trips, sailing through the Outer Barrier by the passage south of Yonga Reef, back through Cormorant Pass, round a smallish reef to its landward and out again through Cormorant Pass. There was a fresh warm breeze, sunshine and small cumulus clouds. Outside the reef we pitched in a gentle swell coming in from the open ocean. To the south the breakers on Ribbon Reef stretched as far as we could see. The ocean like blue black ink, the reefs pale green, the horizon ruled sharp, Lizard Island misty grey towards the sun. Cook must have had a job to make out the positions of the passages from there.

Water depth in the passages was about 20 fm, and as we sailed along 100yards off the reef it was around 23 fm.. A short distance farther out there was a steep fall to .40-50 fm. The ledge in fact varied between 15-24 fm at its outer edge.

We were sailing at 5-6 knots with three lines for marlins trailing out over the stern, using whole fish as bait. In the past the Osprey was reputed to have caught an 800lb marlin, but not this time. During the first two hours

there were four false alarms, when bits were taken out of the bait, then a 3ft barracuda was brought aboard, then another similar barracuda. They were lugged in with a gaff and clubbed as they lay on the deck – they took quite a bit of clubbing before deciding to stop wriggling. Who can blame them?

This was the beginning of as effective a demonstration as I could wish to observe that modern man, however conditioned, is still separated by the thinnest of veneers from his hunter-gatherer origins, a veneer which drops away at very little prompting. Our international (UK, US, Canadian, French, Australian) group of nine quite senior scientists (plus some wives) almost instantly transformed itself into an integrated and effective band of bloodthirsty hunters, half clad in tropical rags and raring to go, with leaders and followers, experts and less competents. How right are they who say that man is the most dangerous of all animals! Geology was forgotten. To Hell with liaison with the party on the Tropic Queen. Our little group had broken loose and time warped itself back some 5000 years..

When darkness fell we were anchored just behind the Outer Barrier, with half a dozen weighted and baited lines dangling over the boat's sides. The procedure was to let the bait touch bottom at about 100ft, then pull it up 18 inches or so to attract bottom feeding fish. The catch was rapid – Spangled Emperor Fish, Red Emperor, Red Bass, Sweet Lips – their lengths mostly 18 to 24 inches. All looked very surprised and rather battered, as well they might. The satisfaction of the hunters was palpable, and the Osprey's crew performed an economically important function by shovelling the fish into a concealed tank through a circular trap in the after deck – having rendered them incapable of damaging themselves by undue struggling, I believe this was achieved by cutting their spinal cords.

If, though, the reverted hunters thought it was their group which was to benefit from their exertions, they were mistaken. The catch turned out to be the prerogative of the crew, hence the steps to keep the fish alive until return to port. Twentieth Century economics had permitted and underpinned the reversion to the savage. As a reward, though, the hunters were next day allocated one small fish steak each, probably, in all, the product of one chopped-up medium-sized fish.

Friday 3rd September 1976

After breakfast I snorkelled across a bommie with vertical sides 20-40ft high, near to which Osprey had been moved. At its foot coral debris merged into white sand, sloping away. There was a slight cave-like undercut at about 20ft below LWM, also vertical grooves down to that depth. Much dead coral and coral rock in the sides of the bommie, with living corals well developed and well scattered. Some precarious overhangs of dead coral and hanging boulders up to 1 m diameter. Amongst living corals, I noted 'Teddy Bears Rugs', 'Favosites', bluish 'Brain Coral', platform corals, purple Stags Horn – in roughly equal quantities. Also clams. Also I saw what I took to be a Sweet Lips fish about a metre long, which had evaded the hunter gatherers. Apart from unusual lips it had a prominent brow above its eyes.

It was, in fact, warm enough to stay most of the day in the water, so after this snorkel I went for a Scuba dive with Charles Phipps. We started by collecting a sample of coral sand (it contained a large component of fines) from a depth of 22m on the west side, then swam clockwise right round the bommie, whilst I took several photographs. For most of this dive we were shadowed by two graceful sharks about 6ft in length. Charles Phipps ignored them, so I followed his example.

Later we all boarded the inflatable and motored to land on the eastern side of Ribbon Reef, parts of which were emerging by about 50cm at low water, and several niggerheads (large blocks of coral debris cast up in storm conditions) by up to 1.25m. After an unsuccessful attempt to persuade Lucette to use a snorkel at the same time as a facemask, in the course of which I managed to damage her leg, six of us walked across the reef flat to the outer edge. Here we were able to snorkel over the reef front in nothing more than a gentle swell – an unusual circumstance in a location where heavy breakers are the norm.

We found ourselves with a privileged view at the top of a spectacular cliff with a ridge and groove form, clothed in luxuriant coral growth including many platform corals tilted slightly seawards. The cliff fell in crystal clear water to a depth I presume to have been 20fm, where there lay a white sand flat merging into a blue distance. A smallish (1.5m) shark took a vacant interest in our activities.

After the visit to Ribbon Reef the thoughts of the party reverted to more important matters than geology. We belted south to the first passage through the reef and then slowed to about six knots, again trying fairly unsuccessful marlin fishing in the open ocean. We caught three fish, of which one was a barracuda. Finally we anchored behind the reef at a point some 15 miles NE of Endeavour Reef, and started serious over-the-side fishing. One of the catch was of a golden colour and was averred by all the hunters to weigh 20 to 25lb, another had brilliant blue back markings.

Saturday 4th September 1976

We moved first to Endeavour Reef and anchored off its south flank in fairly choppy waters due to a fresh SE breeze. This was the exposed side on which Endeavour struck a coral pinnacle and had to offload most of her ballast and heavy equipment in order to get free. An American team located the site and salvaged the ship's cannons in 1969, leaving on site an underwater metal tripod they used for hoisting them. We spent about two hours finding this tripod by snorkellers jumping at intervals from the inflatable, and I am pleased to say it was eventually I who found it and fixed a buoy.

Then followed diving and more snorkelling around the site. I saw nothing of note other than profuse coral growth. There was 18 inch long staghorn coral growing on the A-shaped metal frame, which reached to within 4ft of the surface at low water. There were tabular corals up to 8ft across and clams up to 5ft long, both the largest so far. Charles Phipps brought up lumps of coral encrusted ballast – some was brown mica-schist, some

looked like dolerite. There was also some black clinkery material alleged to be part of an iron cannon ball.

I dived with Dick Maise, an American from Saudi Arabia. We went down about 40ft to sand on the north, sheltered, side of the bommie, where the light was getting grey and milky, then swam back across the top of the bommie to the Osprey.

In the early afternoon we finally rendezvoused with the Tropic Queen at the sand cay of Pickersgill Reef, going close in with the inflatable and finally slithering ashore across rubbery soft corals. Dick Orme gave me the impression of not being too pleased that part of the party had chosen to swan off on its own, pursuing non-geological interests and missing his evening seminars, but he remained commendably silent.

Pickersgill sand cay had a storm ridge of light debris at its top – light shells, seeds, feathers and pumice (pumice is common in Pacific storm beaches). White herons sat on the storm ridge as we returned to the Osprey.

We waited off Pickersgill Reef for over two hours to rendezvous with a float plane coming to pick up two members of our party (the Bourrouvilles, French academics) who were obliged to catch a plane out from Cairns early on Sunday. The float plane failed to arrive, having gone in error to Hope Island, hence in the evening Osprey belted back at full speed to Cairns to put them ashore, which task was achieved at 10.35 pm. This episode at least spared the lives of a (probably) significant number of fish at the hands of the hunter gatherers.

Sunday 5th September 1976

Sunday was in any case the completion day for Congress Excursion 6C, so on Sunday morning we picked up a hire car which I had booked beforehand. It was a pale blue Ford Falcon 500 Estate, Queensland registration number ONG 114. We returned to Osprey for our farewell lunch, then took several members of the party to the airport before ourselves setting off northwards along the coast.

After looking around we settled on spending the night in a pleasant caravan at Oasis Caravan Park, Palm Cove. The area between Cairns and Palm Cove we found to be reasonably developed, with chalets and small single storey apartment blocks, but plenty of room on a golden sand beach. Having fixed our accommodation, we went on north to about three miles past Ellis Beach. This part of the coast proved to be undeveloped except for a magnificent coast road, even more magnificent in the sunset. Ellis Beach itself had a rough-looking camp site on a narrow coastal platform below the hills.

Monday 6th September 1976

Having now had a fairly good look at the Queensland offshore and coast, we intended to spend a short time trying to get at least a small taste of the Outback, our preference being to camp, or failing that to see what we could

find by way of lodgings. We therefore returned to Cairns on Monday, where we spent a pretty frustrating morning. First we purchased food, then unsuccessfully tried to hire camping gear, unsuccessfully tried to sort out our return air tickets, and successfully lost our car for half an hour. Thereafter we set out inland to Moreaba and Mount Malloy, keeping our eyes open for lodgings as we travelled.

The road led up a steep heavily forested escarpment, then through thinner woodland with many fires burning in the undergrowth. Around Moreaba, a flourishing little agricultural township, was much irrigation including fields of tobacco. Had we stopped at Moreaba the local motel would have cost \$16 for two, an Italian hostel (the wifee spoke virtually no English) \$8 for two. Mount Malloy turned out to be a small but pretty rough village with one 'hotel'. This was very much a 'wild west' drinking den with weather-beaten wooden shutters on all sides, the shutters open to reveal knots of lounging weather-beaten male characters decorating a circular bar and wearing wide brimmed hats. The cost would have been \$2 for B and B for two. I inspected the proposed accommodation at each place, but found it convenient to leave Lucette in the car to facilitate our escape.

I fear that our Moreaba and Mount Malloy visits were to be as near as we could get to an experience of the Outback. It clearly was 'different'. In the end we slept successfully in our Falcon Estate car at Kingfisher Camp Site, in a tropical forest environment a few miles north of Mount Malloy on the road to Mossman. Our first wild kangaroo hopped sedately across the road two or three miles before we reached the site.

We had a private lamp post which we could switch off ourselves, chairs, and excellent toilet/washroom/shower facilities including hot water. There was also a games room. The site had only two other occupants. It was run by a young couple of which the wifee was a teacher at the local school and the husband pottered around, including growing oranges. The oranges had blossom, unripe fruit and ripe fruit all side by side. We saw a kingfisher near the orange trees. After nightfall it was pretty dark away from our lamppost and the lights of the owners' bungalow, with an unceasing whistle of crickets on all sides, plus periodical whoops and squawks from distant birds.

Tuesday 7th September 1976

We learnt in the morning that the young couple running our site bought it as bankrupt stock about a year earlier, complete with all its facilities. They did not advertise it, wishing to build up a clientele by personal recommendation, but to date there had been very few customers. Pawpaws were on sale on a table in front of their bungalow. Medium 30 cents, small 25 cents - 'put money in box'.

We started our day by a walk in the woods around the camp site where, notably, we encountered a couple of butterflies as large and stately as birds gliding amongst the open jungle vegetation.

We then went on to Mossman, on the coast, where we enlisted the help of the local Ansett agent to try to sort out alterations we wished to make to our return air tickets. This failing, we returned to Cairns along the Cook Highway (coastal road) in a final (successful) effort to do so in person. We then retraced our route back along the Cook Highway, stopping off to see a 'wildlife reserve', which was not much more than a pretty basic zoo. It did, though, have a lot of crocodiles, mostly small. Cost was \$2, subsequently recorded as having been a waste of money.

We did not get back to Mossman, because at Port Douglas, south of Mossman, we stumbled on a very pleasant bungalow for rent, complete with cooking facilities plus TV, and we decided to use this as our base for the remainder of our Queensland stay.

Wednesday 8th September 1976

The morning was spent on shopping expeditions to Port Douglas and Mossman. Port Douglas was a run-down defunct port, but beginning to rise again as a - still small - holiday resort. The old colonial hotels had taken on a new lease of life and sprouted motel-like extensions.

The afternoon was spent on the large beach near our bungalow, doing what one does on beaches. It had all the appropriate tropical beach attributes, but was near empty. The evening was slightly disrupted by a need to use candles for around 30 minutes every hour, due to load shedding by the local electricity board on account of a strike. In the darkness there were loud grasshopper sounds outside, also loud clucking by some unknown animal.

Thursday 9th September 1976

We went first to Mossman to get a newspaper and postcards, then continued north along a gravel road to Daintree on the Daintree River. From there we tried to go to Upper Daintree but, finding the road blocked by repairs to a bridge, turned left up a track to Stewart Creek - through rough but lush pastoral country of the Daintree Valley. Plenty of healthy looking cows here, with a notice to the effect that the herd was introduced in 1912.

Back to Daintree, then a detour east to see the ferry on the road to Cape Tribulation, which we did not board. Mossman again, and up the Mossman River to Mossman Gorge for a swim in a large pool in the river. It was quite cool but pleasant. Saw a number of fish.

Back at our bungalow we had a walk in the gloaming to and from the beach, then another session of 30 minute power cuts per hour.

Friday 10th to Sunday 12th September 1976

We ground to a halt centred on the Port Douglas area. Near the path to our local beach we found a large spray of small whitish wild orchids growing on a tree – not too impressive, but they were the only tropical wild orchids we saw. Port Douglas was within walking distance of this local beach, along Four Mile Beach. We also found a place between Port Douglas and Mossman called Cooya Beach, and another beyond Mossman called Newell Beach. Both had a sort of ribbon development of small bungalows, many of them old, behind a palm backed sandy beach. Sand dollars and bits of coral were to be picked up.

There was mud too. Cooya had a broad mud flat at low water, when the sea turned into mud. A large mangrove-filled river entered the sea at the north end of Newell Beach.

On Saturday we climbed up the 'Lookout' in Port Douglas. This was a prominent rounded hill from the top of which it is apparent that the town is set in a wide flat area, largely occupied by sugar cane plantations.

Monday 13th September 1976

Monday was the day of our move from Cairns to Gove. We had been invited to visit the Nabalco opencast bauxite mine and alumina plant at Gove on our way through, and this was the reason it had been necessary to alter our return flight reservations. In the morning I managed a haircut in Cairns (\$2.50), also we visited an orchid nursery on our way to the airport, plus a rather pleasant botanic garden on the north side of town.

This was also the day we were to discover that so-called scheduled flights in the peripheries of Australia were a bit informal. The Ansett flight (per Fokker Friendship) which was to have left Cairns at 1.15pm and travelled directly to Gove, in fact left at 3.50pm and travelled via Weipa – a major detour. However, this provided an opportunity to see the northern part of the Queensland coast. The passengers and crew also proved to be most unusually (in our experience) talkative, to the extent that before we landed we had got to know fragments of the life histories and aspirations of several of them.

We had a fine view of Port Douglas and its neighbourhood as we departed. Just offshore of Cooya Beach, despite the mud, there was the back end of a coral reef, quite clear from the air.

We turned inland and crossed a good gravel road, believed to have been the Laura to Cooktown road. A car had no trailing dust cloud. For a while we followed a road running along a river valley to our left – this we believe to have been the Laura to Lakefield road. About here the vegetation became more sparse, merging from dense rain forest on jagged mountains to miles and miles of vaguely wooded flattish misty nothingness. In the vicinity of Weipa there was a rectangular grid of tracks laid out in scruffy eucalyptus woodland. This grid became more closely spaced as we approached the huge red area of shallow open-cut bauxite workings which

is the raison d'être of the town of Weipa. Two boats were loading raw bauxite – the only product of the Weipa works - as we flew in.

We learnt that alumina fetched four times the price of raw bauxite, and aluminium four times the price of alumina, but processing required large power supplies, not available at Weipa

Weipa Airport was set amongst the arms of wide estuaries. The terminal building a small but quite modern structure open on both sides. A little group of dignified aborigines was discussing life fairly heatedly on the airfield side of the building. We got out of the plane only briefly, into a damp warmth, whilst some luggage was offloaded. Then the captain announced 'All aboard please.' Monotonous wide sandy beaches fringed the Gulf of Carpentaria. Around 30 minutes after crossing the coast darkness fell with rather a nice sunset for Lucette to admire from her window seat.

There were ten of us on a plane with 40 seats – six passengers, two crew, two hostesses. Dinner was available to be served whenever one wanted, either before or after Weipa. Over the Gulf of Carpentaria the group became unusually talkative. The gent next to us lived at Melbourne but was going on spec to try for a job with Nabalco at Gove. His grandparents were from Dunfirmline, and he told us about the 'Edinburgh Tattoo' held this year in Tasmania. Another gent somewhere behind said he was responsible for the design of the Gove alumina plant. One of the hostesses came from Newcastle, NSW, but lived in Brisbane. She was due to go to the USA in a couple of weeks, and had also visited Soho (with an ex-nun). She informed us, 'It's not much fun going to Singapore without a man; everybody tries to get you.'

At Gove Airport we were met by a gentleman called Chris Hindley and his wife. They also met another couple from the plane who were writing an article about the Nabalco plant for a woman's magazine. Mrs Hindley drove us to the Walkabout Hotel, clearly in some trepidation about night driving. Chris Hindley presented us with honorary membership cards of the 'Arnhem Club', which we later used to have a drink at the bar. We discovered there was a 'sergeants' section and an 'officers' section, and we accidentally started off in the sergeants section. In this there was a notice advising one what would happen if one did various objectionable things, like 'vomiting' or 'engaging in loud aggressive talking'. To go into the Arnhem Club one had to wear 'Gove minimum informal dress' of shoes, socks, shorts and a shirt. The Walkabout Hotel specified 'long socks'.

Tuesday 14th September 1976

We had an early morning walk on the beach after a continental breakfast. Then at 9am we were picked up by Max Norris, the Works Security Policeman, and taken about 8 miles to the Nabalco Plant. We first met Dr Doetling, Works Manager. After a talk with him we were handed over to Harry Maize, Production Manager, who showed us over the plant. Amongst others we met an industrial chemist, Derek, in charge of the XRF

area, who was a real enthusiast. He produced samples from a box labelled 'samples for visitors'.

We were told that production is about 5 million tonnes of raw bauxite per year, of which about half is processed into alumina. We were shown stockpiles, jetties (ships up to 70,000 tons loading at bulk jetty), and control room.

Lunch was at the Walkabout Hotel, and at 3pm we were picked up by Richard Hinde, Mine Manager, who took us some seven miles to look at opencast bauxite workings. Loose pisolite was removed by loaders working directly into tip trucks; cemented pisolite and tabular bauxite being first bulldozed into heaps.

The eucalyptus woodland of the company area was constantly burnt over to prevent the undergrowth getting big enough to burn the leaves of the larger trees. This burning, an aboriginal practice, was regarded as a 'thoroughly good thing', since it recirculated trace elements more quickly than would otherwise be the case, and provided new shoots for kangaroos and water buffalo.

Twice a year new areas for opencast working were cleared by bulldozing woodland and burning the trees. The topsoil was then removed and spread out in old completed areas, which were sown with grasses and local trees. After four wet seasons rehabilitation was considered to be well in hand.

In the evening we went for a swim, which cost 40 cents in the central pool. After an expensive dinner we watched basketball – two women's teams (the previous night it was men). Whites and aborigines mixed quite equally, but aboriginal spectators sat in tight groups and many of the women players seemed to have children.

Wednesday 15th September 1976

We spent most of the day in Gove, then in the evening flew to Darwin. Started by a visit to Nhulunbay Beach, walking south as far as a headland round which was visible another large bay with red cliffs (hence named Rainbow Cliffs). Outcrops of red level-bedded bauxitic rocks being eroded by sea on foreshore. This was probably the best beach we encountered for large fat shells, also quite a lot of coral debris.

At 10.30 am we were picked up by Barry Owen, who belonged to the Nabalco Plant Police, but was their main contact with the local aborigines. He took us on a tour of aboriginal enterprises. We started at Yirrkala Mission, run by the United Church Mission, where we met Garry, an educated aboriginal who accompanied us on our tour. The Mission building was well planned – was built before the war; church was stated to be well attended and a new 'reverend' had recently arrived. Then went to the native store (scruffy supermarket with limited stocks of the usual things plus clothes), past two schools (there were three in all, with 12 teachers), to a lookout with a good view of the bay (a building was planned for the site), and a workshop and a brickworks. The brickworks used local quartz sand

plus imported cement, produced grey bricks, and had a contract for all local building.

We were then taken to a poultry farm run by a white manager, George, for the aboriginal community. There were 4000 chickens, each allowed to produce eggs for one season, after which they were sold live to the aborigines. The eggs were being graded into boxes by two aboriginal girls. George was, at the time, a worried man because his chickens were mysteriously losing their feathers, to the extent that he was desperate to get the advice of a vet.

On the way back to lunch at the Arnhem Club Barry Owen took us to the top of Mount Saunders, overlooking Nhulunbay.

The local abos (as the whites called them in private only) were clearly being buttered up by the whites on account of their ownership of mineral rights. They were mostly sitting around in small groups chatting and looking after their fairly numerous children, and not doing much else. There were thirteen clans in the Gove area, each with a head. There was also an elected council, the Dhanbul Association, with a chairman whom we saw briefly. This Association received a Royalty of 30 cents/tonne for bauxite mined, and with it financed the enterprises we were shown, in fact the 'Dhanbul Association Inc' and the 'Yirkala Associates' shared an office. The Association also made all local decisions, including which whites to admit to their village. We were told, 'They are funny people, some days they will not even speak to you.'

The Gove aborigines wore European clothes and were clearly much influenced by the plant, although this was stated to be a local effect only. Basically they were still hunter gatherers, including fishermen, with no agriculture. We saw three returning from the sea, carrying sharpened sticks but no catch. They liked to get away to 'outstation' in the bush whenever they could, outstation consisting of a blanket stretched over four poles. We saw one of these structures in the village, although there were also asbestos houses – all very disorganised and mucky. When they went outstation, teachers and medical services followed them around, schooling being more or less obligatory from 3 to 12.

They were stated to be very good at basketball and Australian rules football, young ones being lithe, lightweight and skinny. They had high cheekbones, large intense dark eyes, big heads, wavy masses of black hair and very dark skins. They smoked a lot, but drink was apparently not a problem. The women did all the work, carried everything and walked behind the men. All were Christians of a sort, but retained sacred trees and places, initiation ceremonies. If a man died his brother inherited his wife. There were a few halfcastes around, but they seemed to be accepted by all.

After lunch we had a protracted session in the town centre swimming pool. Eventually we joined Mrs Hindley and the two Australian journalists in the bar of the Walkabout Hotel, got our luggage into her car, and she uncertainly wobbled us to the airport. We were welcomed there by a gaggle of aboriginal children waiting for plane arrivals and departures.

Our flight to Darwin was by Fokker F28 jet of MacRobertson Miller Airways (MMA – locally known as Mickey Mouse Airline). We had a good view of the Nabalco Works as we took off, then Arnhem Bay, with two large rivers, Large salt marshes and mangrove swamps behind narrow beaches of yellow sand. Then smoke haze and cloud, with Van Diemen Gulf appearing grey and misty below. We saw South Alligator River wide and brown, winding, with extensive lakes and cut off meanders. Much whitish saltmarsh, small lakes, open woodland. Salt workings alongside a straight gravel road.

At 6.42pm we crossed a tarmac road and landed at Darwin. It was a fairly small airport open on both sides, still in the late stages of repairs after Hurricane Tracey two years earlier. On account of a need to sort out our tickets with Quantas we did not have time to see much of Darwin. It was slightly warmer than Gove. Plenty of people wearing shorts, but most intercontinental travellers in longs.

We departed from Darwin at 9pm, to Bangkok (5.5 hours) passing over the Timor Sea at 35,000ft, Java Sea, Singapore and the Gulf of Siam.

Thursday 16th September 1976

We reached Bangkok at around midnight local time, and descended briefly into a transit lounge where there were a dozen knick-knack stalls manned by very bored-looking young Thai females. Soft piped music, high degree of artistry and craftsmanship, but we contented ourselves with just admiring.

Travelling through the night, our next port of call was Damascus, where 'for security reasons' we were confined to the plane as it sat on the tarmac for an hour. Dawn came up on our starboard side – a narrowish band of colours rising above a broad belt of grey mist above a flat horizon. As the light strengthened it revealed a flat brown grassy landscape on all sides, with scattered green tuftlets and in the distance clumps of trees. There were large batteries of lights on concrete pylons and a small version of the Calgary Tower with a rotating white and green light on top. Aircraft were parked in a scattered fashion near the tower. In a Jeep sat one bored-looking Arab with a scarf round his neck.

As we taxied to depart from Damascus the sun was beginning to shine bright on this barren moonscape, the distance still very misty, high bare brownish mountains with the sun sloping low over them on our starboard side. Soon we were climbing steeply over barren brown hills with a line of blue water glimpsed beyond on our port side.

Later we had a magnificent view of northern Lebanon – range after range of north-south hills with sandy brown valleys between and occasional dried-up but rather symmetrical settlements. The whole area pale brown and barren-looking, with some of the hills more like mountains.

From 35,000ft Cyprus, too, produced some beautiful views on the starboard side. The 'pan-handle' was a blue range of mountains with a clear-cut straight crest, ending in a wide sandy bay to the west.. Rugged lightly-

forested mountains seemed to occupy much of the SW of the island. Around Larnica, where we did a sharp turn to the right, was a landslipped/bad land type of topography.

As we descended into Athens it was possible to identify a plethora of Greek islands, many mountainous, several of the smaller ones apparently deserted. Athens Airport, though, was a disappointment – a generally unfriendly atmosphere and virtually nobody who admitted to understanding any English. Blue sea with white ships beyond the airport.

We also landed at Belgrade, labelled 'Beograd Aerodrom', where we were informed 'Photographie absolument interdit sur le pays' and were again not allowed off the plane. How immature can some of us become as we grow up! The Danube was here not blue but mud brown, winding in a civilised way through an enormous monotonously flat land. The airport was sited in an area of large long thin fields of what I took to be maize. Close up, the grass was green and bespeckled with blue cornflowerc.

We changed planes at Paris and reached Welwyn Garden City at 7pm local time – to the usual warm welcome.