

I checked in at the Town Hall Motel in Christchurch.
The ~~appointments~~ in my room ^{was} ~~were~~ much like a good American motel though simpler and more tasteful. The rate included a continental breakfast which the guest prepared for himself. The management provided dishes, electric coffee pot, toaster, and a small refrigerator which the ^{Management} restocked each day with fruit juice, bread, butter, milk, and coffee.

The next morning, with Frank Todd, who had come down on the same flight to arrange for the shipment of penguins to Sea World in San Diego, I went to the Hertz Agency and rented a small Mazda sedan. Frank and I were at first a little nervous about driving in New Zealand, a ^(where one drives on the left) left hand drive country. ^{For the most part,} At first, driving on the left is like performing a simple operation while in heavy traffic looking in a mirror; the worst situations arise/at complicated intersections and traffic circles, where one's instinct is to turn right.

Frank wanted to see black swans, which are abundant along the coast ^{at} southeast of Christchurch and in the lakes and marshes southwest of Banks Peninsula, a huge, dead volcano. We set out for lake Ellesmere, a large salt bay, working our way around the western side through the villages of Lincoln and Leeston. We saw many black swans sedately cruising about in the sheltered bays and estuaries, ^{as well as} smaller numbers of ^{white} contrasting mute swans, Canada geese (imports from America), and gray and mallard ducks.

Frank was disappointed that ^{at} though we searched through the marsh grasses, we did not find any swan nests.

That afternoon we drove through Christchurch and on to the estuary of the Avon River. The Avon, from which Christchurch derives its reputation as a garden city, winds through the town and is featured as a park with grassy banks and flowering trees, a water fowl sanctuary.

On the second morning I picked Frank up at his hotel, and we drove to Banks Peninsula. The Peninsula is a circular headland indented by many small fjords and bays. Cutting halfway across from the southeast, Akaroa Harbour, a long, deep bay formed by ^{the erosion} ~~eroding away~~ of one side of the ancient volcanic crater and flooding by the sea, is now a resort for sailing, swimming, and water skiing. Green hills dotted with white houses rise steeply, level on level ^{above} ~~out of~~ the blue-streaked water for many hundreds of feet. These slopes have long since been denuded of trees to make ~~grazing~~ land for sheep, and now, except for scattered patches of forest, they are grass-covered to the top. But here and there a fiercely thorny shrub, a broom of the pea family, has taken over, in place of the native pines. Where it grew in abundance at that spring time of the year, its ^{brilliant} ~~glaringly~~ yellow flowers turned whole mountain sides bright yellow.

I wanted to see as much of New Zealand as I could in my few weeks, and because Frank Todd's penguin project kept him

close to Christchurch, we separated after this second day together.

All ^{of} New Zealand's South Island is hilly or mountainous; the only flat land is found along the southeastern coast from Christchurch to Invercargill at the southern end. The highest mountains extend ^{with only minor breaks} the length of the island and are jammed against its northwestern shore. The middle part of this system, the Southern Alps, ^{are} the highest of all ^{are} glacier-covered and snow-capped, and ^{rise} to altitudes of between 3000 and 4000 meters. From these peaks rivers flow southward between progressively lower ranges until they emerge on the outwash plains, the chief farming areas on the island. Many of the narrow valleys in the eastern slope contain long finger lakes, a few ^{of which are} artificial. The southernmost part of the principal mountain range, the Cameron Mountains, are sliced by many steep valleys into which the sea penetrates from the west to produce an intricate complex of deep, narrow fjords. Except at its northern end, at Milford Sound, this long stretch of coast is inaccessible by road. The whole northwestern coast of South Island is rain forest in which tree ferns grow with other species in jungle ^{profusion} density.

The entire eastern watershed (two-thirds of the island) is a brown, treeless land of low mountains and rounded, grass-covered hills cut by numerous dry, stony water courses. In spring, thickets of golden flowering broom give color to an otherwise drab land-

scape. This land has become sheep range, ^{the} ~~and a~~ source of wool and meat, ^{1- New Zealand's most} important exports.

I took the northwest highway from Christchurch to Greymouth through the Southern Alps ^{via} by Arthur's Pass. Rounded hills gave way to low, rocky mountains that rose higher and higher towards the west. Vall~~leys~~ys narrowed to gravelly gorges bordered with yellow broom, and the craggy mountain tops showed a dusting of snow from a storm, ^{passed} which has struck across the island the night before, bringing rain to the lowlands. As the road wound ever higher, forests of conifers and evergreen beech covered the lower slopes, and permanently snow-capped peaks ^{with} holding glaciers appeared. Over Arthur's Pass the road descended precipitously. At Jackson's I took a secondary road to a sportsman's lodge on Lake Brunner, called Mitchell's. Along this road I saw my first tree ferns, which increased in number to become ^a the dominant species on the lake shore. There was only one other guest at Mitchell's, a portly and pompous Colonel Blimp type from the North Island. We shared a table for dinner and breakfast. Our conversation was ~~all~~ on trout fishing.

After breakfast I headed for the coast and the town of Greymouth on the Grey River. The road passed through many scenic reserves, forests of tree ferns, ribbon-leaved plants, and tangles of vines. Near the coast I began to see a curious palm. Its smooth trunk ended ~~just below a head of leaf blades~~ in a bulbous swelling, from which the leaves rose in a crown resembling

a feather duster. ^{From a short distance} ~~At no great distance~~ the tree ferns with drooping fronds looked more like palms than the palms themselves.

From Greymouth I drove north on the coastal highway to Westport. The land, rising sheer from the sea or from narrow inaccessible beaches, resembles the Big Sur coast of California. The road has been carved into this steep green bluff of bush, ferns, and small trees. Turnouts and stopping places are few. At one place where I pulled off, the left wheels sank in the soft shoulder, and I was hopelessly stuck until a kind, young motorist with a tow rope rescued me.

The weather turned bad during the night so I decided not to visit Cape Foulwind and turned south again by way of the interior road through Reefton. I arrived in Hokitika, south of Greymouth, in time for a buffet lunch at the Westland Hotel. An Australian tour filled most of the dining room. I shared a table with a pleasant middle-aged ~~Aussie~~ Australian couple and chatted with them about New Zealand, Antarctica, and Vermont where ^(the before) last year they had enjoyed a white Christmas with friends. They complained about the heat in Sidney at Christmas time.

The next day, November 20, I drove south to Franz Josef, a resort on the western slope of the Southern Alps under Mt. Cook; stepping on the way ^{I stopped} at the rain forest reserve by Lake Mahinapoua. The forest, through which a well-kept, two-mile trail winds, is a ~~thick~~ jungle of tree ferns, large strange fig-like trees called

"^{Rates}reetas", and other semi-tropical species. Here I first saw the Bellbird and Tui, whose clear, flute-like whistles--not at all bell-like--sounded in the dense foliage from first one side and then the other with ventriloqual ambiguity.

From Franz Josef one can visit the glacier for which the resort is named and the Fox Glacier, 25 kilometers south along the coast. These two glaciers extend down the western slope of the Mt. Cook complex of peaks farther than any others. They reach nearly to the rain forest only a few hundred feet above sea level. Two centuries ago they ^{actually} ~~did~~ penetrate the rain forest but have been retreating since New Zealand was settled by Europeans. Forest vegetation is advancing over the old moraines left by the melting ice, covering and stabilizing the jumble of glacial till. I followed a seldom used track over the lateral moraine by Fox Glacier until I could see the high peaks projecting above the ice fields surrounding them. The only vegetation were lichens, the most striking of which was a red, granular variety ^{that ed} coating the glistening, schisty boulders.

I had expected that wild flowers would be abundant, but there were few kinds to be seen and then only along the roadside, with scarcely any in the fields and pastures. A yellow, buttercup-like flower grew in the ditches, and on the highway embankments a white flower resembling yarrow. The road cuts, however, were draped with ferns and mosses, and even fresh cuts were soon ^{covered by} ~~hidden~~ in a green, fur-like mantle. The paucity of

the island's
flowering herbaceous plants may be due to New Zealand's geographical isolation from the main-stream of angiosperm evolution.

My next stop for the night was at Haast, where the road crosses the Haast River and turns inland following the river before climbing over the Southern Alps at Haas Pass. The forest on the western slope along the river was darker, more compact, and more tropical with bigger trees than any I had seen so far. The ratas, a variety of gigantic epiphyte that takes root on host trees and eventually smothers them, ^{was} were more plentiful. The average annual rainfall on this part of the coast exceeds 300 inches.

After Haas Pass the terrain changed rapidly and strikingly to barren hills ~~and~~ of bush and ^{scattered} ~~scattered~~ brown grass, clean and stony. The road followed the shores of Lakes Wanaka and Hawea, bodies of water filling, ~~unprepossessingly~~, troughs in a dead landscape, on which they ^{had} ~~produced~~ no detectable influence, encouraging on the sterile strand no growth of hydrophilic plants.

I checked in at the Wanaka Hotel, a comfortable inn that caters to a well-to-do clientele rather than tourist groups. In the afternoon I drove to the end of the road that leads to Mt. Aspiring National Park at the southern end of the Southern Alps. The road follows the Matukituki River, which flows from glaciers on Mt. Aspiring. Its bed is a wide, gravel water course, through which the ^{braided} ~~tenuous~~ stream meanders. I was told there was gold in the river. Along the road were notices of mining claims and

no-trespassing signs.

On the 24th I left Wanaka for Te Anu^a, a resort town on a lake, tucked into the forested eastern watershed of the Fjordland mountains. The first part of the way was up the Cardrona River valley to the top of the Crown Range and then ^(a steep)steeply down to Queenstown. The treeless hills rose in monotonous sequence to the summit of the pass. There the predominant vegetation was New Zealand tussock grass, which grows in discrete clumps three to four feet tall and of equal diameter. This tawny, dessicated grass was all last year's growth; the new shoots had not yet appeared.

That night I checked in by telephone with the New Zealand representative of the Polar Program in Christchurch and learned that the next flight to McMurdo had been advanced to the 5th of December. I had eight days left for sightseeing.

The only road to the west coast fjords starts at Te Anau and ends at Milford Sound, where there is a summer hotel. The road climbs over the mountain spine of South Island through forests of gnarled and twisted evergreen beeches, like the beeches I had seen in Tierra del Fuego the year before. The miniature bronzed leaves were just beginning ^{to}unfold, while last year's crop, a dusky green, were still attached and alive. The leaves stay on for several years before they fall.

At its highest elevation, among alpine meadows above treeline, the road enters a one-way tunnel under the divide. It emerges onto a brush-covered talus, down which it snakes into a forest of podocarpus and ferns and on for ^{several} a few miles to the head of Milford Sound. From the shores of the sound, the confining mountains, dense with an extravagant proliferation of greenery that smoothes all contours, ascend perpendicularly from the water's edge for more than a thousand feet, reinforcing the visual impression of the delimitation of the fjord.

After this second excursion to the western rain forest, I returned to Wanaka and the arid ~~environment~~ central hills where ^{the precipitation is} less than 40 inches ~~precipitation~~ fall a year. I took a side road from Glendhu Bay in Lake Wanaka and crossed the Motatapu River at a deep chasm. There I walked down-stream through the willow thickets for two miles. ^{Using} With a bird guide, I identified Silver eyes, Ciril buntings, Redpolls, Yellowhammers, Song thrushes, and Blackbirds, ^{the last a relative} close relations of the American robin; ^{with the ion of} all ^{all} except the Silver eyes are European ~~introduced~~ species. On the coast near Christchurch two other abundant, introduced species are the White-backed and Black-backed magpie. The propensity of emigrants for bringing with them to their adopted country the most adaptable and aggressive species of their homeland wildlife is unfortunate for the indigenous species. This is especially true where the native birds have evolved

intimate, specialized adjustments to restricted island habitats and are at a disadvantage ⁱⁿ competing ^{on} with the more generalized continental species, ^{which are} the inevitable choices for introduction. ^{is} That ^{that fact} no introduced species ~~are~~ protected in New Zealand ^{is} shows that the government is aware of this phenomenon.

For my last days before leaving for Antarctica, I decided to visit the Mt. Cook Range, the climax of the Southern Alps. Mt. Cook is accessible from the south by a road which skirts the shore of Lake Pukaki and the delta ^{of} to the Tasman River ^{which} that ^{ends} empties into its northern extremity. The Tasman River is the outflow from the Tasman and Murchison ~~glaciers~~, the largest in New Zealand. In the course of centuries the retreating glaciers and the melt-water streams flowing from them have filled a good third of Lake Pukaki basin with glacial till ^{to create} ^{ing} an outwash plain confined to a ^{space which was} once ice-filled slot. In recent times the glaciers have been melting rapidly, leaving behind undermined and unstable ridges of morainic rubble still supported on decaying ice. At the end of this ~~valley~~ the serrated peaks of the Southern Alps stand blue and glittering, sheathed in new fallen snow.

These high-country glacial streams are the haunts of the Banded Dotterel, a native plover, one of whose nests I found on a gravel bank. It contained one large, dark-green egg spotted with black. An endemic water fowl of striking plumage that also

frequent these mountain streams is the Paradise Duck. The female is white-headed, dark brown on the back with rusty-brown undersides; the male is predominantly black but with brown-tipped primaries like the female. They both have iridescent white patches on the wings. To me the Paradise Duck in New Zealand was the counterpart of the northern hemisphere's Harlequin duck which is at home in the glacial torrents of Iceland.

I returned to Christchurch on the 3rd of December. The flight to McMurdo was set for the early morning of the 5th. I had just enough time to repack the clothes I would need to take with me and to ship the rest back to America.

At six a.m. on the ^{Friday} 5th I took a taxi to the airport where I waited half an hour for the warehouse to open so that I could resort my baggage and put on my antarctic weather clothes.

^{McMurdo}
December 5, 1975 The C130 of the New Zealand Air Force took off for McMurdo at a quarter to nine. Flying time to McMurdo was expected to be seven or eight hours. C130's are cargo planes or troop transports, the work horses of the Air Force. These ~~are~~ great bulky four motor propeller planes when seen squatting on the runway appear quite unflyable. The view inside is if anything less reassuring. Nevertheless they can carry very large amounts of cargo for long distances. Passengers sit facing inward in web seats attached to the side of the fuselage as a continuous band of webbing. The space between the web seats and the entire

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propeller