The life and times of James Park:
Geologist, Explorer and University Dean

by J.C. Park

Edited by Simon Nathan

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Figure 1. Map of New Zealand, showing the main localities mentioned in the text.

Editorial Introduction

James Park was a leading member of the geological and mining community in New Zealand in the late 19th and early 20th centuries. He worked for almost a decade under James Hector at the New Zealand Geological Survey before being appointed Director of the Thames School of Mines. After seven years at Thames, he became a consultant to the Anglo-Continental gold-mining syndicate, investigating mineral prospects around the Pacific. In 1901 he was appointed Professor of Mining at the Otago School of Mines, where he stayed for the next 30 years. Over his long career he prepared many reports (several published as monographs), scientific papers and textbooks.

An account of Park's life was prepared by his second wife, Jane Park, soon after his retirement in 1932. Although written in the third person, it is largely based on Park's own writing, including reminiscences of his early days and a number of newspaper articles he wrote describing major expeditions. James Park clearly saw the typescript manuscript as it is annotated with corrections in his distinctive handwriting. The manuscript was handed over to Professor Gordon Williams (Otago School of Mines) soon after Park's death in 1946, and he passed it on to the Hocken Library, University of Otago, where it is now preserved.

The manuscript gives a unique view of James Park's career and the late colonial geological community in New Zealand. It is tantalising because it really only deals with the early part of Park's career, especially his work with the New Zealand Geological Survey. His most influential period, with the Thames School of Mines, the Anglo-Continental syndicate and the Otago School of Mines gets only very brief mention.

In preparing the manuscript for publication, I have made only a few, minor editorial changes, and the text is essentially as prepared by Jane Park (incorporating corrections by James Park). I have, however, added some footnotes and text boxes where additional information is available as well as a selection of illustrations.

I am most grateful to the Hocken Library, University of Otago, for permission to publish the Park manuscript as a GSNZ publication so that it is more widely available as a historical resource, and also for permission to reproduce several photographs held in the Hocken collections; to the Scottish National Portrait Gallery for permission to reproduce the fine portrait of James Park by Annie Elizabeth Kelly (Fig. 2), to Philip Carthew (GNS Science) for preparing the locality map (Fig. 1); to Carol Smith (GNS Science) for painstakingly transcribing the original manuscript; to John Isdale for information on the Thames School of Mines, and especially to Judith Nathan for checking the final manuscript.

Apart from this publication, there is remarkably little information about the life and career of James Park. He was a keen photographer, but only a small collection of his photographs (held at GNS Science) has been identified. It is possible that some of his glass plate negatives or albums of photographs survive. I hope that this publication may lead to the discovery of further information about James Park.

Simon Nathan

Wellington, May 2017

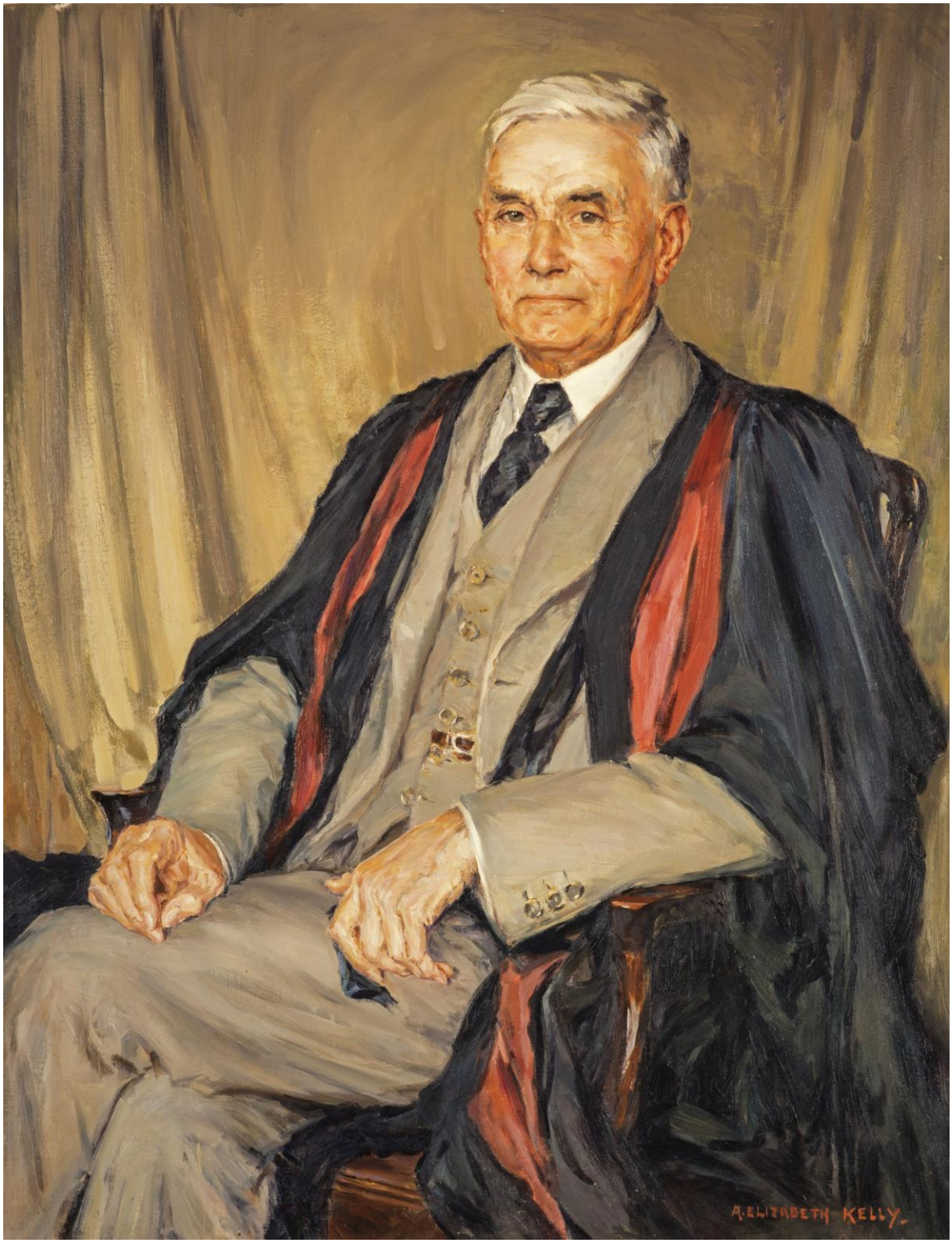

Figure 2. Portrait of Professor James Park, painted by Annie Elizabeth Kelly about 1930. It is likely that the painting was commissioned and presented to Professor Park at the time of his retirement in 1931. He later presented it to the National Gallery of Scotland, Edinburgh in 1939. It is not clear what academic robes Park is wearing as he did not have any formal academic qualifications. Possibly it is a gown designed for the Dean of the Mining Faculty. *Scottish National Portrait Gallery (PG 1398)*

PREFACE

This short outline of my husband's life-work and of the many interesting people with whom he became associated is compiled mainly from his own letters and from letters to him from contemporaries at home and abroad, supplemented with gleanings from the published narratives of his early travels and explorations. His pen-sketches of old friends and colleagues, among them Sir James Hector, Sir Julius von Haast, Sir George Grey and Alexander McKay, are shrewd and always sympathetic.

For over half-a-century he spent his time, vital force and means without stint in the interest of scientific research. Many years were devoted to the exploring of New Zealand's alpine chains and mountain valleys. His travels abroad took him to every continent and to almost all the great mining camps in the Commonwealth of Australia, South Africa, Europe and America.

As a text-book writer my husband became known wherever the English language is spoken. Certain it is that the fine appreciation of his works by his reviewers was to him a source of lasting delight, though be it said, owing to natural modesty, he could seldom be induced to refer to his works except to intimate friends.

He was a successful University teacher, and always maintained that the splendid standing achieved abroad by the men he had trained was his best reward.

In this slim sketch my plan has followed the chronological form as that best suited for the presenting of the many parts he played in the span of an active life.

J. C. Park

Dunedin, 1934

I. SHEEP-FARMING DAYS (1874 – 77)

Professor Park was born in the year 1857, at Thanestone Hall in the valley of the Don, near Aberdeen. He landed at Wellington late in 1874 accompanied by his sister, Elizabeth (wife of Captain John Watson Munro of the 75th regiment of the line), who almost immediately sailed for Gibraltar by way of Sydney to rejoin her husband. The young colonist carried letters of introduction to William Waring Taylor, Walter and George Turnbull, merchants and station owners, and to Dr Hector (afterwards Sir James). Within a week of his arrival he travelled to Taylor's station *Manawa*, at the headwaters of the Whareama, some twenty miles from Castlepoint, where he spent the next few years as a cadet learning the art of sheep-farming.

In 1874 the journey of 95 miles to *Manawa* occupied two days though it can now be compassed by motor car in four hours. The first day's travel in Cobb & Co.'s coach, starting at the Nag's Head Hotel in Cuba Street, landed him at Masterton, at that time a log-strewn, bush village. On the journey he sat on the box-seat beside the driver, Andrew Young; and as they passed from stage to stage a fresh and thrilling landscape gradually unfolded itself to his eager gaze. Threading their way along the winding lane, hewn in the sombre bush covering the slopes of the Rimutakas, he could not but wonder, so he records, what the future held in store for him behind the ranges.

Masterton was situated on the edge of the Te Oré-oré Plain. Many years later, when a guest at Kawau Island, Park enquired of Sir George Grey the meaning of the name Te Oré-oré. "The name", said Grey, "originated in this way. A party of Maori pioneers set out to explore the upper Wairarapa plains, for the most part covered with dense forest. A woman, who happened to be in the lead, coming suddenly to the edge of a clearing, brushed aside the overhanging foliage, and gazing with open eyes across this wide, grassy plain dotted with clumps of stately pines, cried out in the excess of her delight 'te oré-oré, te oré-oré', which means the beautiful, the beautiful".

Before leaving Wellington James Park called at the Colonial Museum and presented Dr Hector with a letter of introduction from Sir Andrew Crombie Ramsay, Professor of Geology at the Royal School of Mines, London, and Director General of the Geological Survey of Great Britain. Though he did not suspect it at the time, this meeting with the Director of the Geological Survey of New Zealand was destined to be one of the epochal events in his life, at a later date leading to some of the most interesting phases of his career as geologist and explorer. He came to New Zealand some twelve years after Hector's arrival in Otago and, as a result of his activities, got to know many of the notable pioneers of the young colony, with some of whom he formed life-long friendships. Of these more will appear in the sequel.

In his interesting treatise on the pioneers of the New Zealand Goldfields, Dr J.R. Elder describes Professor James Park as a connecting link between the Dominion's pioneers in science and the present generation.

To return to *Manawa*. The station manager was John Wingate, a Scot from Stirling, a kindly capable man whose main duty was the breaking in of the virgin land for the grazing of sheep and cattle. His wife, though born of gentle folk, was unafraid of the isolation and domestic drudgery that commonly fell to the lot of the wife of the early pioneer. With abounding hospitality she had a welcome for all. Writing of her in a biographical sketch of "The Life

and Times of the Rev. John Chapman Andrew", better known as Parson Andrew, owner of the *Ica* Station situated ten miles to the south of *Manawa*, Park says that she was "a woman among ten thousand and beloved by all".

In these early days neighbours were few and far between and Masterton, the nearest township, was distant some 35 miles. Two miles to the north lived William Penny, son of a Yorkshire brewer and a brother of Bishop Nevill's first wife. Penny's place was called *Waitawhiti*. Between it and the coast lay *Mataikuna* owned by a Major J. Valentine Smith; while to the south, on the east bank of the Whareama, stretched *Tinui* run owned by Robert and Fred John Maunsell. Again to the south of that, as already mentioned, came Parson Andrews' *Ica* Station. To the west of *Ica* lay *Taipo* Station owned by the bluff John Morrison and marching with this to the west was Duncan Cameron's *Blairlogie* celebrated for its gas-springs. To the south of *Blairlogie* came T.C. Williams' run, *Brancepeth*, at that time being broken in by the Beetham Brothers whose sister had lately married Williams. The Beethams' were pioneers of the best type, capable and enterprising. By grit and perseverance, they triumphed over many difficulties and *Brancepeth*, in their hands, eventually developed into one of the finest sheep-runs in the Wairarapa.

Twelve years later William Beetham and H.P. Higginson, the latter first Engineer-in-Chief to the Manawatu Railway Company, accompanied Park in a reconnaissance geological and mineral survey of the *Taitapu* Estate in the extreme north-west corner of Nelson Province.

At *Manawa*, the round of work was mainly seasonal and included the usual station routine of mustering, shearing, dipping, stock-riding, cattle-branding, burning and grass-seed sowing. Transport was by bullock-dray, sledge, pack horse or mule.

At his home on the banks of the Don, Park was a keen fisherman in those far off days busking his own flies, a book of which is still preserved with zealous care. On his arrival in New Zealand he was greatly disappointed at the absence of trout or native freshwater fish that rise to the fly, but soon consoled himself with the hunting of wild pigs and wild cattle which abounded on *Manawa* and the neighbouring runs. In four years he shot thousands of pigs and hundreds of wild cattle.

Writing in 1929 concerning Cadet Park, Margaret H. Wingate, third daughter of John Wingate says, "Though little more than a child at the time I can still call to mind Professor Park as tall, thin, wiry and bronzed, usually astride a big horse."

With a carbine slung on his back and a pack of excited dogs at his heels the young cadet spent most of his time in the saddle – boundary-riding, stock-riding or pig-hunting. Cattle hunting was mostly followed on foot in the bush covering the southern slopes of the Puketoi Range.

Park has left it on record that the free life in the open fascinated him. It certainly was a fine training for his later adventures in the King country and arduous expeditions among the southern alpine chains.

In Whareama country the rainfall of 40 inches was well distributed throughout the year; frost was rare except in the foothills of the Puketois; and the average summer temperature in the shade was about 65^{o}F. The climate was healthy and sickness almost unknown. In the years spent at *Manawa*, Park says there was never occasion to call in the services of a doctor. For

simple ailments, cuts and bruises the universal remedy was a dose of camomile or Koromike tea, or of painkiller, which was used internally and externally. The good health enjoyed by all was, he continues, "surprising when it is remembered that the staple diet was bread, potatoes, mutton or wild pork partaken three times a day with no green vegetable, except a rare dish of rau-rau (Maori cabbage). Fresh fruit was not obtainable."

Among his earlier notes Park mentions that the *Manawa* days were not strenuous, nor were they monotonous. "In the daily routine of our remote solitudes", he writes, "little things, in our limited horizon, loomed big; and at night, in the dim light of the smoky tallow lamp, they were often the subject of long and serious talk. Rounding up the sheep on their hill-top camps at the peep of day, the chase and slaying of the hated wild dogs, the shooting of the wild bulls that in the spring of the year ventured from the ranges to tempt our gentle heifers to adorn their harems in the leafy bush, and adventures with wild boars, each in its turn, in our primitive mode of life, stood out in bold relief as affairs of grave concern and absorbing interest."

In after time, that was forty years later, referring to these early days he wrote, "Yes! We were a primitive people and, I imagine, lived in the narrow atmosphere of the pastoral folk of a thousand years before. The hunting of wild dogs or the breaking in of a stalwart, well-grown bay meant more to us than all the vapid speeches of politicians in the Houses of Parliament."

In three years Park visited Masterton only three times, the return journey, in all eighty miles along unformed tracks, taking two days. The horses, upstanding bays trained for stock-riding, were either unshod or shod only to the fore-feet.

On one of these occasions he travelled from *Manawa* to Bulls in the Rangitikei country and back to *Manawa* - that was in the winter of July 1875 - and his simple narrative of this journey strikingly reveals the discomfort and danger of travel in these early days. To a relative he wrote –

"I started at the not too early break of a raw winter day, with a cold mist rising up the slopes of the eastern hills. Astride my grass-fed mare I cleared the corner of the stock-yard on the rise behind the station house and, as I topped the hill, turned in the saddle, one hand on the mare's rump, to wave my adieu to Mrs Wingate whose ample dish of eggs and bacon had filled the part of my body below the belt with comfort and great content."

"Two hours later I passed Tinui and in another half hour crossed the saddle into the Mangapakeha Valley. On the left rose the black Taipos that, in the grey of the morning, appeared to rival the pinnacle Dolomites, this illusion arising from a low-lying, level blanket of mist above which the sheer peaks seemed to rear their heads to a monstrous height. The weird and exaggerated forms that natural features assume when viewed through a bank of mist is known to every traveller among the ranges."

"Seven hours later I arrived at Masterton where I baited my horse and myself had a meal. At four in the afternoon I pushed on for Dorset's Accommodation House at the Scandinavian Camp on the fringe of the Forty-Mile Bush. Before retiring for the night I paid my score and instructed William Leslie Dorset (his full name) to leave breakfast for me in the dining room and a feed of oats and chaff for my horse as it was my intention to continue my journey at daybreak. I woke at four, fed my horse, had breakfast and set off at five."

"At this date", he continues, "the road through the Forty-Mile Bush to Woodville was a clay track without a vestige of metal. It was a narrow lane hemmed in by towering forest trees mainly matai, miro and totara and, being the only means of access between the two sides of the island, it's surface had become churned by horse and cattle traffic into a squelching corrugated quagmire that made travel at a pace beyond a slow walk a physical impossibility."

"After leaving Dorset's there began a torrential rain which continued till I reached a small bush settlement called Eketahuna, where I had a good meal and fed my horse. I was strongly advised by the inn-keeper and some bushmen in the bar not to proceed for they said that the Makakahi was in high flood and still rising. However, not to be denied, I bought a flask of brandy and set out, the ostler shouting after me. 'We'll see you back in an hour'."

Sure enough the Makakahi was running bank-high and, in the gloom of the evening, it was difficult to distinguish the landing place on the far side. Lifting my feet from the stirrups I guided my mare into the discoloured flood and, making her breast the current, she carried me safely across to the opposite side without fuss, swimming almost from bank to bank. All station horses (in these days of unbridged rivers) were trained to be reliable swimmers and, of them, none was pluckier or steadier than Gipsy. It may have been a result of unconscious bias but, at any rate, the notion was generally held by stockmen that mares were more confident and tractable in water than geldings, and the aged more so than the young. Be that as it may, with some heaving and scrambling, Gipsy found her feet on the far bank in the water lapping the trunks of the trees. Thankful to be across I patted and praised her, took a pull at my flask and set out in the failing light for the Manawatu River which lay between me and Woodville."

"Some horses swim high, that is with their back almost awash, others swim low, though why I could never discover, with little more than their head and a part of the neck showing above the water. Gipsy was a high swimmer, but for all that I got soaked to the armpits and, what with that, the pelting rain and the squelching mud underfoot I did not look forward to the continuance of my journey with much joy. With the Manawatu between me and the nearest stopping place I plugged steadily but slowly along and at ten, that was several hours after nightfall, I came to the Manawatu which was in high spate and overflowing its grassy bank. Darkness hid the opposite bank from my view while the sullen flood, carrying tree-trunks and drift-wood in its swirling waters, held me irresolute as I led my mare up and down. If the far bank had been visible I should have taken the risk but, not knowing the position of the landing place, I at last made up my mind to stay where I was till daybreak. Thereupon I sat down on a log while Gipsy nibbled the grass. After a time she neighed. Presently there was an answering neigh from upstream and, as this was a hopeful sign of some nearby bushmen's camp, I cooeed lustily, not once but often, meantime walking towards the neighing horse. After what seemed to me an endless wait there came through the still night a clear answering cooee, to me a truly heavenly call."

"We walked towards one another, he downstream, I upstream. At last his figure loomed before me and, when he approached with a soft, melodious 'tenakoe pakeha' (greetings to you white stranger) I knew that my friend was a Maori. I pointed to the river and his answering 'he waipuke' informed me that he understood my plight. He took the reins from my hand and led the way while I followed behind."

"With much barking of dogs we came to a big Maori house, a 'wharepuni' or community sleeping house. He unsaddled my horse, which was turned adrift, and led me into the house, at the same time pointing out a sleeping place among other recumbent forms. Although the rain had long ceased, my clothes were still damp but, through sheer fatigue, I lay down and soon fell into a fitful sleep, broken in the early hours of the morning by fleas and prowling dogs."

"At daybreak my kindly host led my horse to a canoe into which I stepped with my saddle behind me. A rope was fastened round the horse's neck and, with one Maori holding the rope's end and two paddling, we crossed the river without mishap, Gipsy patiently swimming behind the canoe.

The Maori village was Ngawapurua, and the name of the chief who befriended me Huru Tehiaro."

"Once across the Manawatu I made good speed to Woodville, a rain-sodden, depressing bush village, at which I arrived in time for breakfast. The only inn, called the Club Hotel, was owned by a Captain John James Murphy, a one-legged man, who caused my sodden clothes to be dried in the kitchen while I lay abed."

"After dinner I travelled to *Waitatapia*, J.T. Dalrymple's place, near Bulls in the Rangitikei country, where I discharged my commission and, without delaying to eat, returned to Woodville where I slept that night in comfort. In going and coming I passed through Palmerston North where I baited my horse and had a meal. The Dalrymple I refer to was a son-in-law of W. Waring Taylor who was, at one time, the owner of *Waitatapia*. On the return journey through the Forty-Mile Bush the rivers were running at a normal level and, apart from the slowness of travel owing to the churned up condition of the clay road, I got back to *Manawa* in two days – two long, tiring days they were too – the first to Dorset's and the second to my journey's end. Altogether the journey of some 285 miles took five days of hard going."

"Thus ended my first trek across the island, from coast to coast. To my youthful fancy it was a wonderful experience and the five days it took, to be rightly understood, must be measured not by the distance but against the bad roads, the swollen rivers and miserable conditions of travel. From *Manawa* to Masterton, and from there to Woodville and back to *Manawa*, I did not meet a soul on the road, riding or walking, with whom to exchange views concerning the deadly monotony of the weary miles."

"On this journey I obtained my first glimpse of the Maori. In after years I formed many warm friendships among the natives of the Upper Wanganui, Mokau and King Country."

In a footnote to this narrative Park mentions that, according to Mrs Graham Speedy, Waring Taylor's wife was a daughter of Dr Knox, a skilled Edinburgh anatomist, who became mixed up with the notorious murderers and body-snatchers Burke and Hare, whose gruesome trade created a sensation in Britain in the forties of last century.

II. PIONEERING WITH THE GEOLOGICAL SURVEY *(*1878 – 1889)

In the early seventies of last century the price of wool fell to four pence a pound which was below the cost of production and, meat-freezing being unknown, the run holder was compelled to boil down his fat sheep for the tallow. At the same time the market for sheep-skins was sluggish and the price low. The result of all this meant a serious loss to the pioneer settlers who had spent their available capital in fencing, burning, grassing and stocking their lands. The financially weak went to the wall or became hopelessly burdened with debt while the stronger only managed to scrape through.

In these circumstances, finding it impossible as he puts it, to raise the capital necessary for the development of his Puketoi land Park decided, much to his regret, to abandon for good and all the high hope of settling down to the peaceful occupation of sheep-farmer. He accordingly returned to Wellington, in September 1878, and obtained a post as Field-Assistant in the New Zealand Geological Survey[1]. It is worth mention that, while roaming after wild cattle, he noted the character of the rocks of Tertiary age abounding in that country and, from time to time, collected fossils for the Colonial Museum from the Taueru limestone, Taipos sandstone and Manawa clays.

The native birds, he records, as present in the country at the headwaters of the Whareama were the robin, canary, yellow-wattled crow, saddle-back, huia, tui, bell-bird, ground-lark, parraquet, kaka, pigeon (Kereru), morepork, grey owl, fernbird, fantail, riro-riro, sparrow-hawk, swamp-hawk, weka, kiwi, grey duck, teal duck, shag, kingfisher, pukeko, pied shag and bittern. Some of these were seasonal visitors following the ripening of the hinau, tawa and konini berries.

In the summer of 1878-79 Park assisted Alexander McKay in his survey of the Nelson area which extended from Dun Mountain to Ben Nevis and Tophouse to the south, and from the Waimea Plain to the Baton River and Mount Arthur Tableland to the north. The weather was fine and the work progressed without incident worthy of note except the usual hardships that were at that time part and parcel of pioneering in high country where the rivers were unbridged and tracks had not yet been formed.

In July 1879 Major J. Valentine Smith called at the Colonial Museum and offered the young geologist the management of his *Mataikuna* run situated on the east coast to the north of Castlepoint. Though the remuneration was tempting Park said that he preferred to continue the more congenial work with Geological Survey.

In the summer of 1879-80 he accompanied McKay and John Buchanan on a geological and botanical survey of the region extending from Lake Ohau to Hawea and Wanaka. Excursions were made to the sources of Hopkins and Matukituki. The mountain ranges forming the drainage areas of these rivers were mapped and, at the same time, thousands of alpine and sub-alpine plants were collected and preserved by drying and pressing. The collections included many new species, among them a large number from Mount Alta to the north of the Matakituki.

[1] The Appendices for House of Representatives (1881, section H) records that Park had the designation 'Messenger geological' and was paid a salary of £125 a year.

In 1880-81, Park was field-assistant in the North Auckland and Collingwood areas to Samuel Herbert Cox, Assistant-Geologist, who was his cabin mate from London on the clipper *Soukar* in which they arrived in Wellington in 1874.

It was in the late seventies that Park first met Julius von Haast and F. Wollaston Hutton both of whom had been employed by Hector in carrying out special surveys for the Geological Survey.

Returning to this period Park makes generous acknowledgement of the experience he gained with McKay and Cox, and later with Hector, which enabled him later to put into practice the theoretical knowledge of geology he had acquired under Professor Sir Andrew Crombie Ramsay of the Royal College of Science, London, for his research relating to the Pleistocene glaciation of Great Britain. Sir James Hector, writes Park, was a geologist and explorer with a European reputation when he arrived in New Zealand, this arising from his geological research with the Palliser Boundary Commission in Canada of which he was the official geologist and surgeon. In six years after his arrival in New Zealand he had already mastered the salient points of the complicated structure of the country as witness his geological map of the colony published in 1869, the first of its kind.

"None but a man with the vision of a genius could have accomplished this wonderful piece of work which embodies all the fundamentals of New Zealand's structural geology. He certainly gleaned much valuable information from the published geological work of W. Lauder Lindsay and Hochstetter, but his was the master-mind that wove the whole into a connected story."

Further on Park continues, "The great work Hector carried out for Science in the Dominion as Manager of the New Zealand Institute and for higher education as Chancellor and Vice-Chancellor of the University of New Zealand still remains to be told".

Of McKay, his old colleague, he says, "Next to Hector, McKay stands by himself as the greatest exponent of New Zealand geology. Contrary to the belief held by many of the younger generation, he was a man of high culture and wide reading. He was engrossed in legends and folk-lore and, in the romantic years of old age, lived in a fairyland of panelled rooms and mullioned windows hung with tapestry, a land peopled with Rob Roys, Robin Hoods and Little Johns. His mind moved in two compartments – one devoted to the cold facts of science, the other crowded with images of the past and tales of adventure. Scott and Burns he could recite with effortless fluency and dramatic effect. For the rest, Ossian appealed to his Celtic strain and often he turned to Southey's version of 'Amadis of Gaul', a hero whose adventures and impossible triumphs gave him an unholy delight. His prose reading was not wide, and generally he found relaxation in Fielding, Smollett, and Richardson. It must be admitted that his favourite reading had a strong Rabelaisi in flavour. For the modern novel he professed but small patience."

"McKay's first introduction to geology was the reading of Hugh Miller's 'Old Red Sandstone'. Later he followed the gold rush to Victoria but, being more interested in prospecting than gold-seeking, he travelled through a great part of Coastal Queensland. About 1868 he came to New Zealand and soon after his arrival began prospecting in the ranges at the upper end of Lake Ohau."

"In the course of his explorations among the ranges he suffered much from cold and shortage of food. On one occasion he was attacked by snow-blindness – a most painful malady – with the result that he permanently lost the sight of one eye, though this loss was known to only a few of his intimates."

"From time to time he forwarded to the Canterbury Museum parcels of rocks and minerals for identification and valuation. In 1871 Haast, the Curator, persuaded him to take an appointment at the Museum as collector and general assistant."

"In 1873 Hector offered McKay the post of Fossil-Collector to the New Zealand Geological Survey and, as this fitted in with his plans, he willingly accepted the offer. Afterwards he visited many parts of the Colony making valuable collections for the Survey from hundreds of localities. He was a born collector and very little escaped his searching scrutiny."

"But McKay", continues Park, "was more than a mere collector of rocks and fossils. He put on record with the minutest care the horizons from which the collections were made, at the same time indicating the stratigraphical position of the fossil bearing beds and their relationship to the general geology of the district."

The members of the first Geological Survey, despite differences of opinion on matters of geologic interest, were noted in the Public Service for their esprit de corps. There was, however, 'a rift in the lute' that unfortunately led to the permanent estrangement of Haast and McKay.

In the Spring of 1872, acting under the direction of Haast, McKay excavated a Moa-bone cave about seven miles from Christchurch on the main road to Sumner. Acting in accordance with Haast's instructions he kept a minute record of the layers of soil passed through and of the bones and shells found in each layer. Up till 1874 Haast had not finished his examination of the abundant excavated material and refused to publish the results piecemeal.

Meantime, in a paper read before the Wellington Philosophical Society, McKay published the principal data recorded by him in the course of the excavation. As Park describes it the 'fat was in the fire' and Haast vehemently resented what he described as a breach of confidence on McKay's part. The matter attracted a lot of attention at the time and the general opinion was that McKay had broken a recognised convention in divulging matter that rightly belonged to his employer. The affair was soon forgotten by all but Haast who completely ignored McKay for ever after.

A contemporary describes Haast as a typical bearded German, a big man six feet high, with a sallow face and clear grey eye. After his meeting with Hochstetter in Auckland Haast became an ardent student in all branches of natural science and, by study and observation, became in time an accomplished field-geologist. His monumental work on the 'Geology of Canterbury and Westland' contains a vivid narrative of his explorations in Nelson and Westland. He collected an immense number of moa bones at Glenmark and, by judicious exchanges with European museums, built up the famous Canterbury Museum. For his good work as Commissioner at the Indian and Colonial Exhibition in 1885 he received the honour of knighthood. From 1880 till his death in 1887, Haast was the honorary New Zealand correspondent of the famous Professor Eduard Suess of Vienna, a post that was afterwards filled by Park.

Reverting to McKay. From 1872 onward, still quoting from Park, "McKay devoted himself to the reading of the best geological literature. His constant companion was Lyell's Principles. He even carried this famous work on his camping tours reading from it nightly by the light of a candle stuck in a split-stick pushed into the ground. "The drone of his soft monotonous voice," says Park, "soon lulled me to sleep in spite of my efforts to keep awake. Often he chided me with sleeping instead of listening to the words of the great master."

"In 1876 McKay was promoted to the status of Field-Geologist and, on the resignation of Cox in 1885, he became Government Assistant-Geologist, a post he held till 1890 when Sir James Hector retired from active service. When this took place McKay was transferred to the Mines Department with the title 'Geologist to the Mines Department' and hereafter, till he retired, his time was mainly devoted to the economic side of geology."

"McKay kept himself well abreast of current geological literature. He was profoundly impressed with the work of the American Geologists Dutton, Gilbert, and Davis, who demonstrated the geological significance of faulting as a factor in the development of major topographical features. He applied his newly gained knowledge to New Zealand and was the first to show the role that powerful faulting had played in the tectonic structure of these islands."

"As a poet Alexander McKay affected the Burns style but with little success. His best poem was his "Canterbury Gilpin", a satire on Haast's method of Moa classification. It was published anonymously and Dr T.M. Hocken, in his Bibliography of New Zealand Literature, wrongly ascribes it to W.M. Maskell, sometime Registrar of the University of New Zealand. As a matter of fact I revised the proofs – a thankless job for McKay cursed me up hill and down dale for turning his inspired, as he called it, verse into prose. All the same the next day brought more sheets and still more curses right up till the end."

Figure 3. Photograph of Alexander McKay, probably taken in the early 1890s. *Cyclopedia of New Zealand*, 1897

"McKay was dark and of medium height, inclined in old age to run to corpulence. At 60 grew a beard, at the same time allowing his silvery-grey hair to become so long that he looked like the hairy man from Borneo, his spreading fuzzy mop almost concealing his keen kindly eyes and fine profile with its high forehead and clean-cut sensitive Nordic nose."

"He was a tremendous admirer of Dr Johnson and had the curious conceit that, in habit of body and hirsute growth, he might easily be the twin brother of Boswell's famous talker and essayist. At the age of 60 McKay's elder brother, John, bore a strong resemblance to him."

"In 1885 McKay became an ardent spiritualist much to the annoyance of Hector who told him that he was suffering from hysteria and needed a holiday."

Reading between the lines it is easy to perceive that the staff of the Geological Survey formed an intimate and harmonious band. But need one wonder? For months at a stretch, writes Park, they breathed together God's pure air among the ranges; basked in the same sunshine; slept side by side with a few tussocks between their tired bodies and Mother Earth; shared the common drudgery of camp life; carried each his equal portion of the food and camp gear; shared the same hardships and dangers; moreover, each was a devotee of science for the sake of science. To them the hope of discovery was like the lure that impels the gold-seeker onward to find new and distant fields. The vast amount of work accomplished by Hector, Hutton, McKay, Park and Cox is certainly a fine example of efficient team work. Hector, one would gather, was a good organiser and an ideal chief.

In the winter months reports were written, maps prepared, rocks and fossils examined and classified. A feature of these days was the weekly talk in the big fossil-room in the rear of Colonial Museum, where points of geological interest were freely discussed by all, and nothing but good nature prevailed. They agreed or disagreed and no one turned a hair. There was the understanding between them that is born of mutual trust and friendship, something too deep to be ruffled by mere differences of opinion on abstract problems.

To these talks none had access except the Hon. Walter W.D. Mantell, who had a wicket in the boundary fence giving easy access to the rear of the Museum, and Sir George Grey who invariably started a discussion on his copper lodes at Kawau Island.

The members of the staff were so intimately associated in all their work that the life history of the one is in large part woven into that of them all.

In the winter months of 1879 Park prepared and mounted some 200 slides of New Zealand's igneous rocks for microscopic examination. He says that, with the primitive equipment at this disposal, he found the work most laborious. Those slides were of the thick type and of little value for petrological study. They are, however, of historic interest as the first produced in New Zealand and are preserved by the Geological Survey as heirlooms[2]. In later years Park became proficient in the making of rock slides and in their petrological examination.

[2] In 2017 no trace can be found of these early petrological slides

III. RECOLLECTIONS OF SIR GEORGE GREY

As a member of the Geological Survey, Professor Park frequently met Sir George Grey of whom he has penned the following sketches.

"When attending the annual session of Parliament in Wellington Sir George Grey lodged at the old Molesworth Hotel, nearly opposite the House of the Legislative Council. His favourite walk was in the adjoining Government House grounds and, from there, he sometimes wandered to the nearby Colonial Museum in search of diversion and conversation with the staff of the Geological Survey. Usually he introduced himself with some quizzical enquiry concerning the wind, the daily earthquake, or the probable fate of his cherished copper lode at Kawau Island from which, at one time, he looked for untold wealth. Certainly his interest in the trend of modern science showed no evidence of waning with increasing years; and his keenness in these informal talks proved him a wide reader of current scientific literature. On occasion he invited me to join him at his mid-day meal at which the conversation turned as a rule to Maori folk-lore and legend, of which he possessed a rich store, acquired at first hand from sources uncontaminated by European traditions. For the Maori and his culture, his language and all his works, he had a sincere affection".

"In the late 'eighties' of last century it fell to my lot to examine the copper and manganese deposits in his beloved Kawau, and for ten days he was my host. He liked the account I gave him of my explorations in the outlawed King Country after the last Maori War and expressed particular interest in the rebel chiefs I met in the course of my wanderings, among them the notorious Ngatai and Wetere Te Rangi. But the main topic of our conversations was the genesis of Maori place-names of which he was a learned exponent. Much that I gathered from him on this attractive subject has been recorded by me elsewhere. It is of what I saw in him in these slender contacts that I now write".

"Sir George Grey was a chronic dyspeptic but, despite bad health, was alive to everything worth knowing – political, literary and scientific. His face was thin, almost ascetic; and, though he listened to a humorous story with relish, was never known to let himself go in a hearty laugh. He was content to pucker his face in a cynical smile that seemed to be at the easy command of his expressive features. A man of cool judgement in every practical emergency; a chin of courage and decision".

"He was a fluent speaker with a fine knowledge of the power of the spoken word, of rounded phrases and well-timed dramatic pauses. Eloquent and arresting, there could be no doubt of his power to hold an audience. Generally he spoke in the thin stilted voice of naval officers, which carries far even against the noise of pounding seas and the flapping of tortured sails. For the rest he would be wooing and confiding, defiant and triumphant and, at the moment, convincing. In his dealings with natives he was firm but just and his dramatic sense helped him, in no small degree, to get behind the native mind. It must be conceded that he achieved more by supreme patience and tact than by threats or the display of force. As an administrator of Native Affairs he stands without a rival."

"Sir George Grey was possessed of a supreme vanity that spurred him to aim at high achievement; but it was a scourge to his back, for it led him into trouble throughout the greater part of his official career. It made him impatient of advice and wilfully autocratic, creating an attitude that proved a stumbling block to the maintaining of good relations with the officers in power with whom he became associated. Furthermore, it cropped up in many

other directions as when it led him to change the spelling of his name ‘Gray’ to ‘Grey’, and to adventure in his declining years into the troubled sea of politics in England and New Zealand. Though overflowing with the milk of human kindness he was not a success as a politician and, on the public platform, his dignity was often offended by ill-natured interjection. For many days after his ruffled feathers made him peevish and irritable.”

“As a politician he confessed himself a democrat with a socialistic bent, and his enactments witness that this attitude was founded on sincere conviction. He possessed an aristocratic bearing of which he was, I think, consciously proud but this pose may have been in part a result of his isolation and in part a subconscious endeavour to maintain the dignity of the high authority vested in him as a representative of the Crown.”

“His home at Kawau showed a curious mingling of culture and the commonplace. His library was packed with many rare books and priceless manuscripts, mixed with a lot of stuff of no value. Afield, his beautiful domain was a grotesque menagerie of deer, rabbit, hare, wild pig and cattle, Australian kangaroo, opossum and wallaby, New Guinea tree-wallaby, Californian quail, peacock, duck of many kinds, pheasants, grouse, snipe that did not prosper, parrots and parroquets from everywhere, and almost all the common birds of England. The house overlooked a beautiful cove and was surrounded with trees and shrubs from all parts of the globe and the clearings on the slopes were planted with the European oak, ash, elm, Lombardy poplar, willow, and many pines. In this curious muddle, Sir George showed great pride. He evidently thought it praiseworthy.”

“Kawau lies in the Hauraki Gulf about thirty-seven miles from Auckland and four miles from the mainland. Its area is some 5000 acres of rounded hills and spurs with gentle gullies lying between. The drainage runs to the west, almost from the edge of the sea-cliffs to the east. Evidently an earth-fracture or fault took place along the ancient watershed, the eastern portion of the island having subsided below the sea.The island could have made an ideal sanctuary of New Zealand’s unique bird life and flora; for its nearness to the mainland would have made it easy to patrol. Generally the most inaccessible places are the most difficult to protect.”

“Sir George Grey was a prodigious worker as witness the piles of manuscript in his thin, clear handwriting now preserved in the public libraries at Capetown, Sydney and Auckland; his numerous despatches and articles contributed to learned Societies; his pamphlets and books on the folk-lore, folk-songs, and mythology of the aborigines of South Australia and New Zealand by the score. He knew that he was making history and his despatches – neat, painstaking, didactic – were evidently written with an eye to the verdict of the future historian.”

“It was while visiting Kawau that I first met Sir George’s adopted niece who afterwards married his Private Secretary, Seymour Thorne George. He was a big-bodied, florid, splay-footed man who, before coming to New Zealand, was, so he informed me, a subaltern in the London Rifles. After the death of Sir George, Thorne George set up business in the Auckland Stock Exchange as a sharebroker and company promoter.”

“Sir George Grey was the most distinguished and picturesque Colonial Governor of his time, and from first to last an Empire-builder. His dream was the unity of the Anglo-Saxon peoples on a wide and free democratic basis.”

IV. NELSON DAYS (1882 – 1885)

In 1882 James Park left the Geological Survey having accepted an appointment as computing draughtsman in the Lands & Survey Department. For this post he was recommended by James McKerrow, Surveyor General, who succeeded the talented James Turnbull Thomson.

He was stationed in Nelson for three years and, from his letters, it may be gathered that he spent a happy and profitable time in the drowsy atmosphere of Golden Bay. His official duties were light, with much leisure, which enabled him to carry out a good deal of geological research and exploration among the higher ranges of Nelson and Marlborough.

It should be noted that it was in 1878, while on Hector's staff, that he first met Turnbull Thomson, the first Surveyor-General of New Zealand, who wrote many papers on geological and kindred subjects, all of them published in the Transactions of the New Zealand Institute.

Recording his impressions of Turnbull Thomson, Park describes him as "A handsome man with a strong frame and striking personality, well-fitted by Nature for the pioneering work by which he distinguished himself in Southland and Western Otago. It was due to his genius and vision that trigonometrical and geodetic methods of surveying were introduced in New Zealand with the result that, for exactitude, New Zealand's cadastral surveys are unsurpassed in any part of the world."

Further on he continues, "Besides his geodetic work and major triangulation, carried out under the supervision of Turnbull Thomson, James McKerrow will always be remembered for his pioneer explorations in Western Otago. Tall, spare, muscular, with strong, rugged face, he was every inch the ideal surveyor."

Among James Park's associates in the Nelson Survey Circuit were John Browning, Chief Surveyor, a dapper, grey-bearded little man, at one time a sea captain; John Rochfort, pioneer explorer and surveyor; Robert T. Sadd, afterwards Chief Surveyor and Commissioner of Crown Lands, Otago; Walter S. Curtis, draughtsman, afterwards censor of cablegrams in Wellington during the Great War; Frank Stephenson Smith, District Surveyor and brother of S. Percy Smith, who succeeded James McKerrow as Surveyor General.

While in Nelson Park took the initial steps that led to the forming of a scientific society, at first called the Nelson Philosophical Society and later the Nelson Institute. He interested a few friends and convened a meeting. In his "Pioneer Days" (page 12) he tells how the scheme prospered. He says:

"In July 1883, Arthur S. Atkinson, the Hon. Jim Crow Richmond, Thomas R. Hacket, James Sclanders, John Chapman Andrew and I interviewed likely members and, when some 25 promises were obtained, we called a preliminary meeting that was attended by 22 men."

"The meeting was held on August 25th in the 'Bishop's' School with Bishop Suter in the chair. Mr Andrew (that is Parson Andrew), myself and others were appointed a Provisional Committee to draw up rules and regulations. At the first general meeting, held on September 22nd, 86 members were enrolled. Bishop Suter was elected President; Dr A.L. Boor and A.S. Atkinson, Vice-Presidents; Dr J. Hudson, secretary; John Holloway, treasurer; Hon. J.C. Richmond, John Meeson, Fearnly, Col. Walcott, and myself, members of Council. Mr

Andrew was pressed to accept office but would not consent saying that, while he had a high regard for science, he felt himself too old to take up the pursuit of a new hobby."

Park was the first to present papers to the Nelson Institute which still survives as a flourishing body affiliated to the New Zealand Institute.

Another important event in Park's career while residing in Nelson was the forming of the Alpine Club, the membership restricted to eleven. This little coterie, with James Park as leader, was the precursor of the New Zealand Alpine Club.

The members, in bands of three to six, carried out many arduous explorations among the forests and higher ranges of Marlborough and Nelson, preferring the blazing camp fire and whiff of the mountain air to the ease of town life. It is certain that Kipling invoked the Muse sitting before his camp fire in the wooded foothills of the Himalayas gazing at the shadows flitting through the trees:

> "I remember lighting fires; I remember sitting by 'em;
> I remember seeing faces, hearing voices, through the smoke;
> I remember they were fancy – for I threw a stone to try 'em.
> 'Something lost behind the Ranges' was the only word they spoke."

The original and only members of the Nelson Alpine Club were:-

James T. Catley, Crown Land Receiver.
John Honeycomb Cock, Merchant, who afterwards bought the business of W. & G. Turnbull, Wellington.
Walter S. Curtis, Survey Department, a nephew of Oswald Curtis, first superintendent of Nelson.
John Gully, a distinguished water-colour artist.
Arthur S. Atkinson, Solicitor, brother of Sir Harry Atkinson, sometime Premier of New Zealand.
James Crow Richmond, M.L.C., a clever artist, sometime Colonial and Minister and Prime Secretary.
James Hudson, Medical Practitioner.
Andrew Bain Suter, Bishop of Nelson.
John Meeson, retired Principal of School.
Wilson Heaps, Collector of Customs, Nelson.
James Park, NZ Survey Department, Nelson.

All the journeys were performed on foot and on the trail each member of the party shouldered his due portion of the gear and food. In camp each one carried out his allotted task and all shared the common bed on the floor of the tent. Each member had some special hobby to pursue. Atkinson collected spiders, Hudson netted butterflies, Park searched for fossils and such like, Meeson, Cock, Suter, Heaps, Curtis and Catley collected alpine plants, while Gully and Richmond made pencil sketches in their portfolios.

In their expedition to the Spencer Range they made the first ascent of Mount Franklin, some 8,000 feet high, tramped 200 miles, and crossed two high mountain passes in fourteen days. An interesting narrative of the geological and botanical results of this journey are recorded in the Transactions of the N.Z. Institute.

In February 1884 Park and his climbing companion, Walter S. Curtis, walked from Nelson to Marlborough by way of the Maungatapu Saddle. From Blenheim they followed the Coast to Cheviot and, passing Waipara, eventually reached Christchurch. There they took train to Timaru from which they walked across Burke's Pass and the Mackenzie Plains to the Mount Cook Hermitage.

Two days after their arrival they travelled up the Hooker and crossed the main divide by way of the Copland Pass. Unaccompanied by a guide they left the Hermitage at half-past four on a clear morning carrying food for five days as a precaution against mishap or delay by bad weather. They followed the Hooker Glacier and, after three hours hard going, arrived at the foot of the pass. At noon they topped the pass which, by their aneroid, was 7,250 feet above sea-level.

From the pass they descended the snowfields covering the western slopes of the alpine divide and, at six in the evening, bivouacked among some rocks not far from the end of the Murchison Glacier which lies in a branch of the Copland River.

Next day they retraced their steps across the pass. Descending the Hooker they were overtaken by a blizzard which compelled them to take refuge among some rocks. The temperature fell below freezing and the storm did not abate for two hours. Apart from this delay nothing of moment occurred either going or coming and they returned to the Hermitage about seven in the evening.

At the Easter holiday of 1884 Park and Curtis successfully traversed the Mount Arthur Range from end to end, including the ascent of the Double Peaks, which are conspicuous features on the north-west horizon as seen from Nelson and the Waimea Plains. This was a difficult and dangerous feat that many had previously assayed but failed to accomplish.

They left Nelson on the Thursday evening travelling by train as far as Wakefield. As the time at their disposal was short and the journey long, they at once set out for the ranges. The night was clear and they walked along the main road through Dovedale, reaching the Motueka at day-break of Good Friday.

They boiled the billy on the bank of the river and had a good meal of cold mutton, bread and butter. In an hour they were once more under way and walked down the valley till opposite the Graham River, a tributary of the Motueka descending from the wooded ranges to the north. The Motueka was low and they had no difficulty in crossing its clear pebbly bed.

The only settler on the north side of the Motueka was William Heath whose homestead stood near the mouth of the Graham. They talked with him for a few minutes and then took the steep track leading up to Flora Saddle, half-way to Mount Arthur Tableland. Burdened with their swags they made slow but steady progress till within half a mile of the saddle where Curtis dropped behind. He appeared to be in distress and called out that he was done and out and could go no further.

The stress of the long steady ascent of many hours from about sea-level to 3,000 feet had brought on an attack of angina pectoris, generally called breast-pang. Breathing caused intense pain and, as rest was evidently what Curtis needed, Park boiled the billy, mixed him a dose of painkiller, and made him lie down.

After resting an hour Curtis declared he was able to walk as far as the saddle. Fortunately it was now almost level going and, encumbered with his swag, he reached the saddle after many halts. Their original intention was to bivouac at Flora Saddle for three hours and then proceed towards Mount Arthur. It was now necessary to remain there overnight and accordingly Park pitched the fly, made a field-bed of beech branches, and built up a good fire in the open.

Both slept soundly and in the morning Curtis would not entertain his companion's suggestion that they should abandon the trip and return to Heath's. Curtis was strong, wiry and athletic, like Park inured to the dangers and hardships of mountain travel, and he stoutly protested that he was sufficiently recovered to carry on. Accordingly, at seven on Saturday morning, they set out for Mount Arthur, a cold drizzle making the going through the bush uncomfortable and slow.

From Flora Saddle they left the Tableland track and followed the bush-covered ridge to the left which led almost in a direct line to the eastern end of the Mount Arthur Range.

By noon they reached the grasslands above the bush-line and, pressing on, at two o'clock mounted the crest of the range. A dense mist sweeping up from the deep gorge at the source of the Karamea obscured everything but they struggled on, scaling steep rock faces and crawling along narrow ledges with barely sufficient foothold for a goat. The Karamea wall of the Double Peaks along which they scrambled is almost sheer for a thousand feet or more, but the great risk they were taking in following these ledges was hidden from their view by the denseness of the mist.

At five they reached the western end of the range and at once passed over to the Baton River side where they were sheltered from the cold, mist-laden driving gale sweeping up from the Karamea Gorge. They lost no time in the descent and, by gradually keeping to the left, soon found themselves in the headwaters of the Ellis, a tributary of the Baton, which itself flows into the Motueka.

At nine in the evening of Saturday they arrived at the Baton flat and spent the night under the hospitable roof of an old friend, Alexander Thompson, a runholder. Easter Sunday was spent at the Thompson's and on Easter Monday they walked to Wakefield and from there returned to Nelson by train. Altogether they had walked about 140 miles in four days.

Curtis got over his heart trouble rapidly and it did not recur till ten years later when he was climbing in the Mount Cook region. He died at Stoke of a heart seizure in February 1925. By a singular coincidence he was in the act of writing Park at the moment of his death. The half-finished letter is now in Park's possession and he prizes it as a pathetic memento of a life-long friend and companion in many adventures among the mountains. Both of them preferred to spend their leisure and seek their pleasure by the blazing camp-fire among the ranges. Born in England in 1851, Curtis was educated at Hoswil College, Switzerland, where he first imbibed his love for the mountains. By his indifference to danger and hardship, by his quiet humour and cheery disposition, he gained the affectionate regard of all his friends.

In the years 1883-85, Park and his boon companions in travels explored most of the ranges in Nelson and Marlborough.

V. ALFRED DOMETT'S ROMANCE

At the end of 1929, the London Correspondent of the "Otago Daily Times" reported the death at his home in North Kensington at the age of 79 of one Alfred Nelson Domett, described as the son of Alfred Domett, formerly of Nelson, and sometime (1862) Premier of New Zealand. This short press notice revived the story of a long-forgotten phase in the life of New Zealand's talented poet-statesman.

On his arrival in Nelson in 1882 my husband, with his first wife Frances and family, lodged for a time at Panama House. Writing of this period he says, "This was a favourite Hostel, much frequented by the young bloods of the town. There in his bachelor days lived bearded Alfred Domett, poet, artist and politician, and it was there he wrote his famous epic *Ranolf and Amohia*. Moreover, it was while living at Panama House that romance entered his life and it came about in this way. One night in 1856 a house took afire in the part of the town called "The Wood". Domett and other men rushed to the scene of the fire to find a woman calling for help from a dormer-window jutting out from the roof. Domett got hold of a ladder somewhere, planted it against the roof, swarmed up and at considerable risk, so the story goes, carried the woman in his arms to a place of safety. Her three children, one boy and two half-grown girls, had already been rescued. Thus began his life's love story."

"Domett took a kindly interest in Mary George, the comely little mother whose life he had saved. One can easily understand how the fire and thrilling midnight rescue, Mary appealing and comely, Alfred poet and artist, provided a fine setting for a lover's romance. Naturally enough the friendship between them soon ripened to ardent love."

"At that time Domett's official duties took him much to Wellington, and thither followed the winsome Mary. They were married on November 3, 1856, in the District Registrar's Office by the Registrar, John Elisha Smith, in the presence of S. Carkeek and George Moore. Domett gave his age as 45 and Mary George hers as "about 39". Her children, at his request, assumed the name Domett. My first wife's mother, born in Nelson in 1845, was a school companion of the two Domett (that is George) girls."

The union of Alfred Domett and Mary George possesses a strangely human appeal, for it arose not from a passing youthful fancy but from mutual attraction and an abiding affection in their early middle age.

We now reach the final stage of the romance that had its beginning in a midnight fire in "The Wood', three-quarters of a century ago, in dreamy Nelson with it languorous sun and speckles skies.

In the Dictionary of National Biography, Alfred Domett is reported to have married an English lady, but when or where is not stated. Her name is not given and, as he is not known to have been twice married, it may be inferred that the English lady referred to was the lady he rescued in "The Wood", and that the Alfred Nelson Domett whose death was reported in 1929 was the son of Mary George and therefore the stepson of Alfred Domett the poet-politician. The stepson, at the time of his mother's marriage with her poet lover, would be about six.

One cannot but wonder what life held in store for Mary's two daughters. Curiously enough, in the announcement of her son's death, there is no mention of her two daughters.

VI. THE CAWTHRON INSTITUTE

Of Cawthron, whose munificent gift led to the founding of the Research Institute that bears his name, Professor Park, writing to his wife, said, "I knew Thomas Cawthron very well in the Nelson days of 1882-85 and later kept in touch with him almost up to the time of his death."

"A bachelor, he lived in a rather shabby, weather-board house in the outskirts of the town with his sister as housekeeper. He was by occupation a stevedore at Port Nelson and, being thrifty and besides this, possessing a faculty for money-making, he amassed a huge fortune, mainly by the prudent investment of his savings. A large portion of his fortune was made in mining ventures which he took care to investigate carefully before embarking in the purchase of shares. For a considerable period I was his adviser in mining matters and, almost at the time of his death, he was in touch with me concerning the prospects of finding coal under the Waimea Plain. I was to visit Nelson and furnish him with a report on the project and, if I considered it advisable, to select sites for boring."

"Some little time before his last visit to England he spoke to myself and Curtis on the best way to dispose of his money, and we gathered from him that he favoured the founding of a high-grade Technical College to be attended by the brighter students of the provincial technical schools, the maintenance of the students to be provided for by a grant for scholarships. He had the notion that, in time, Nelson would become the education centre of New Zealand. While in England he was in bad health and, thinking his end was near, made a hurried will that apparently did not express his intentions."

The bulk of his money was devoted to the founding of the present Cawthron Research Institute in which much valuable work is being carried out under the supervision of the Director, Dr T.H. Easterfield.

VII. REJOINED GEOLOGICAL SURVEY (1885-1889)

With his sheep-farming experience at *Manawa*, his knowledge of bush craft acquired while roving the trackless Puketoi forests, and travels among the snow-covered ranges of the main alpine divide, Park had developed into an experienced mountaineer at an age when most men are only at the threshold of their adventuring among the ranges. Men are bitten by the microbe of the open either in their youth or, if not then, in early middle age when they begin to be free of the more clamant of life's responsibilities. But, once bitten, the virus remains till the end.

With his mental activity and physical vigour Park became restive in the tranquil atmosphere of Nelson and, in 1885, he welcomed an offer from Sir James Hector to rejoin the Geological Survey in Wellington, with the improved status of Field-Geologist. The opportunity came about through the appointment of Cox to a post in New South Wales.

Park became warmly attached to Cox who was, he says, "a cheery sprightly soul – a fair, thin man just below medium height, scholarly but not given to much serious reading." A graduate of the Royal School of Mines, London, he was recommended to the New Zealand Geological Survey by Professor Sir Andrew C. Ramsay, Director-General of the Geological Survey of Great Britain. He was a painstaking field geologist but did not possess McKay's imagination or power to generalise in matters geological. In 1876 he married the eldest daughter of E.C. Batkin, Wellington, at one time Assistant Controller-General to the Treasury.

Cox left Sydney for London and joined the firm of Mining Engineers, Bainbridge, Seymour & Company. Still later, on the death of Sir William Le Neve Foster, he was offered and accepted the post of Professor of Mining at the Royal School of Mines, South Kensington, and Dean of the Mining Faculty.

It is evident from their correspondence that Cox and Park continued the close friendship that began between them on the "Soukar" in 1874 right up to the end. "Cox will long be remembered by those who knew him for his genial and kindly qualities."

As before mentioned Park rejoined the Geological Survey in the Spring of 1885, at first as Field-Geologist and, for the following four years, spent a strenuous time in the field. Later he was promoted to the new post of Mining Geologist. His explorations and geological surveys in this period are fully recorded in the *Reports of Geological Explorations*, presented as parliamentary papers to both Houses of the Legislature. A complete list of these appears in the Bibliography of New Zealand Geological literature published as an Appendix to Park's "Geology of New Zealand."

Among the many surveys and explorations crowded into the years 1885-89 there are three of special importance. They are his *Geological Survey of the Western Part of Wellington Province and Part of Taranaki*, his exploration and report on *The District Between the Dart and Big Bay* and report on *The Geology of Collingwood County*.

The area covered in the survey of *The Western Part of Wellington and Part of Taranaki* embraced all that portion of Wellington lying to the south of the King Country, in all about 4,500 square miles.

The primary object of this exploration was to determine the succession of the younger Tertiary beds and their relationship to the Mokau coal-measures.

Referring in his report to the difficulties encountered in the carrying out of this work, Park wrote, "The dense vegetation by which, in many places, the strata are covered at the line of junction, the great denudation which they have suffered, and the absence of sections in those situations where the relative position of the rocks is involved in obscurity, present numerous, and in some instances insuperable, obstacles to accurate observation. Under such circumstances analogy must supply the place of actual observation but the relative position of the principal strata, having been correctly ascertained, whatever errors may have originated from the above causes, will relate chiefly to the geographical distribution of the strata and cannot affect the geological deductions that may be drawn from the observations contained in the preceding pages."

Despite the physical difficulties, and wide area to be traversed, Park unravelled the succession of the younger Tertiary strata of New Zealand. For this important work he was congratulated by Captain Hutton and Alexander McKay. Thus Hutton from the Canterbury Museum wrote, "For the first time in the history of New Zealand geology you have placed the succession of our younger Tertiary rocks on a sound basis by actual field observation. You have accomplished a splendid piece of work, and I envy you the discovery of the Wanganui-Patea section, which clears up everything. I am confident this section will be classical for all time. The relationship of my Shakespeare Cliff (i.e. Castlecliff) beds to the Waitotara (i.e. Te Aute) limestone is now quite clear. Your description of this type section is most admirable."

After the publication of the Wanganui report, McKay, writing from the field, sent Park congratulations, saying, "I have long had it in my bones that the solution of the Tertiary tangle of the Scinde Island beds and Te Aute limestone would be found in the Wanganui country. You have, I am glad to see, proved the younger Tertiary succession up to the hilt and I hope it is my good fortune to be the first to congratulate you on the settling of a difficult problem. New Zealand geology is indebted to you and now we can get on to something else."

In 1924 Park contributed to the Otago Institute a narrative of his travels in the King Country while employed in the geological survey of Western Wellington and Taranaki, and this is given in the following chapter. The story is full of interest, giving details of the forest trails, of Maori men and customs, in a region as yet unspoiled by the advent of Europeans. The personal touch invests the narrative with extraordinary living interest, providing the details that are wanting in the "dry as dust" official report.

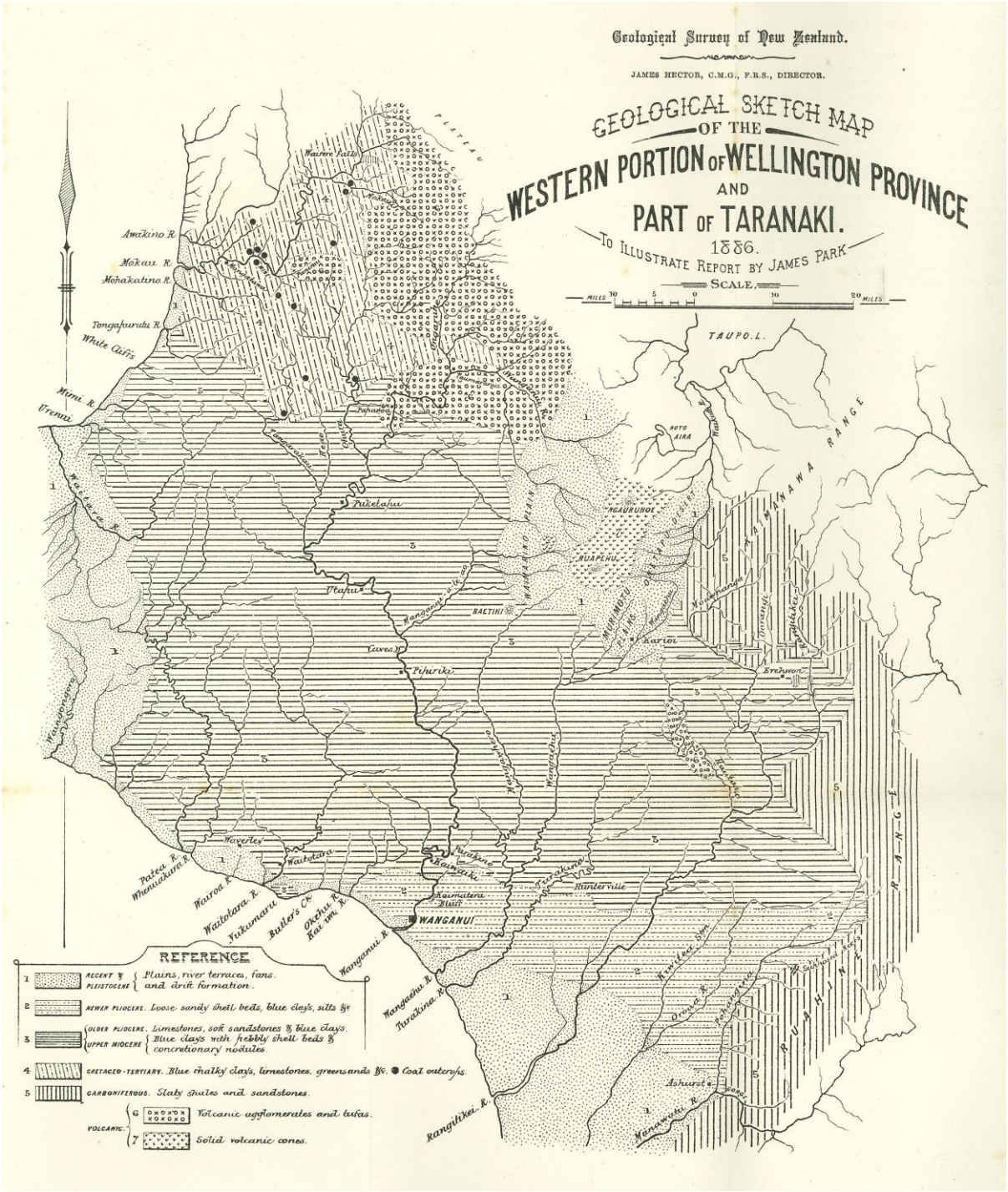

Figure 4. Geological map of western Wellington Province and part of Taranaki Province (from *Reports of Geological Exploration 18*, 1887)

VIII. EXPLORATIONS IN THE KING COUNTRY (1886 – 1887)

Park's reminiscences of many months of travel in the King Country, as published in the *Otago Daily Times,* are as follows:

"In the years succeeding the last Maori War the New Zealand Government left no stone unturned to gain the confidence and goodwill of the natives inhabiting what was politically called the "King Country." And be it said this was by no means an easy task. In these early days the interior was difficult of access and the great chiefs, still smarting from the confiscation of Native territory and the hardships imposed on their people by the late war, for long held themselves in dignified isolation. Though overt acts of hostility were few and far between, this self-imposed isolation bred mistrust on both sides."[3]

"To the west, from the Mokau to Raglan, the King Country was bounded by the sea, to the north by the confiscated lands of the Middle Waikato, to the east by the Taupo-Rotorua line, and to the south by the great forest-belt that stretches without a break along the west coast of Wellington from the western slopes of the Ruahine Range to Taranaki. In a word, the King Country for the most part occupied the high volcanic plateau drained by the head-waters of the Waikato, Waipa, Mokau, and Wanganui Rivers. To the east it consisted mainly of open scrub and fern covered lands of poor quality but to the west, outside the area over-spread by the pumiceous lavas and ash beds of the Taupo region, it was covered with dense forests that grew on soil of great fertility."

"The Government recognised that the settlement of the confiscated lands that ringed the King Territory was the best way to break down the reserve of the Natives. To the same end the exploration of the interior was carried out by the State departments as rapidly as time and circumstances permitted."

"During the greater part of the summers of 1885, 1886 and 1887, I traversed the King Country in many directions. In 1885, with my headquarters near the Constabulary Camp at Hikurangi, I examined and mapped the Te Kuiti, Waitomo, and Pirongia country in the Upper Waipa and, in 1886 and 1887, explored the forest-covered territory lying between Karioi and Waimarino to the west of Ruapehu, the Wanganui Valley as far as the present site of Taumaranui, the head-waters of the Waipa, and the Mokau Valley from the sea to the Waipa watershed. The maps and reports containing the results of my observations are recorded in the contemporary Blue Books presented to Parliament. The narrative of my travels as given in these reports, is bare of incident and couched in the impersonal style beloved by the official mind, as sanctioned by generations of departmental under-secretaries."

"In my wanderings throughout the King Country, I was as a rule accompanied by a field assistant. For my canoe journeys up the Wanganui and Mokau Rivers I hired Maori crews and lived on Maori food cooked in the ancient Maori way. Some day I hope to put on record some of the more intimate happenings of my early travels. Meantime I shall content myself with a short account of my canoe journey to the Upper Mokau and my exploration of the headwaters of the Wanganui."

[3] James Hector had visited the region in 1878, including an extensive trip up the Mokau River, but was unable to persuade the Maori inhabitants to allow access to other Europeans.

The Mokau journey

"Early on a bright sunny morning in November I set out from Waitara, at that time the most northerly of the European settlements on the Taranaki Coast, accompanied by my assistant, Charley Williams, a burly sailorman, hailing from Bristol. Standing on the little wooden bridge, which at that time spanned the river, we watched the breakers lazily rolling over the bar and discussed our chances of passing the White Cliffs at the fall of the incoming tide. Then, shouldering our slender packs, we set out along the old Maori trail for Te Kauri at the mouth of the Mokau. On the way we passed many small Native kiangas and about noon reached the Constabulary Camp at Pukearehu, a military outpost perched on the high terrace at the south end of White Cliffs, where we had a meal with the commandant."

The tide in our favour we descended to the beach and, after a brisk walk, soon came to the end of the Cliffs where we scrambled up the Maori track to the top of the terrace. This we followed all the way to the Mokau without meeting anyone or seeing any sign of Maori occupation except at the Tongaporutu crossing where there was a tumble-down whare."

"We arrived at the south bank of the Mokau before dark and, calling to our aid, two Natives fishing in the estuary we were by them ferried across to the great *pa*.

A talking chief

"On landing I sought out Wetere-te Rerenga, a noted chief with a distinguished ancestry, an undersized, grizzly Maori, generally held responsible for murder of the missionary, the Rev. J. Whitley, at White Cliffs in February 1869. To him I set out that the object of my visit was the exploring of the Mokau as far as Totoro, a place some 60 miles from the sea. He angrily cried that he would not let me go up the river, that he would not allow the country to be examined, that he wanted to have no dealings of any kind whatever with the Government. Without more ado Wetere abruptly walked away.Tired and hungry we sat down on the trunk of a tree, half-bedded on the pebbly strand, and awaited events."

"But Wetere was not only a wily old rangatira but, at heart, a courteous old savage so, after a time, he returned and said that, though he would not let me go up the river, I could stay at the pa as his guest. He led me to a whare inside the pallisade which he set apart for my own use and caused a good meal of pork and potatoes to be sent me."

"The whare was built of rough slabs of wood placed vertically against horizontal bars and thatched with toi-toi. The only furniture it contained was a sleeping mat of flax laid on the bare earthen floor. Through the chinks between the slabs there came plenty of fresh air and, during the four nights I occupied the whare, I slept soundly."

"Daily I pressed Wetere to let me start on my travels and daily he refused. However I stayed on in the hope that something would turn up and, in this, I was not disappointed for my good fairy took the matter out of the hands of the stubborn Wetere."

"On the afternoon of the fourth day I saw a stalwart Maori lacing, with a cord of hand-dressed flax, the side-boards on to a large canoe pulled up on the beach. The object of the side-boards is to increase the free-board of the canoe. Idly passing the time I watched him at work. When finished he straightened himself and, with great directness, asked me what I was doing at Te Kauri. Without awaiting my reply he continued that he had seen me at the pa for the past four days."

"I explained that is was not my wish to stay at the pa but to go up the river to Totoro."

"Then why don't you go?" he exclaimed.

"Because," I said, "Wetere won't let me."

"With a loud "Ea," he continued, "I will myself take you to Totoro. Wetere is only a talking chief. I am Te Huia. I own all the up-river lands," this last with the flourish of a paddle."

I arrange with Te Huia
"In a few minutes I had arranged to set out the next day. I agreed without haggling to pay Te Huia 30s a day for the use of a canoe, 20s a day for his own services as captain, and 10s a day for each of the crew of eight Maoris. On his part he agreed to provide food for all, free of charge."

"It may be of interest to present Civil Servants to know that 35 years ago senior officers, when travelling on Public Service, opened an imprest account at the nearest branch of the Bank of New Zealand. The practice was to requisition the Treasury for a specified amount, say £500 or £1,000 according to requirements, to be placed to the credit of the drawer's account. Payments were made by cheque, the drawer being provided by the department with an official cheque book. At the end of each month the regulations required a statement of expenditure and the bank balance, the last vouched for by a bank certificate, to be furnished to the Audit Department, Wellington, under pain of the officer's monthly salary being suspended. On several occasions, when exploring in the wilds beyond the range of postal services, it was my lot on my return to headquarters to find my salary held up by an unbending Controller-General. This system, whatever its limitations, at any rate obviated the necessity of carrying about large sums of money in out-of-the-way places."

"That evening I told Wetere I was going up the river with Te Huia. He was evidently taken aback but almost immediately exclaimed that there was no need to go with Te Huia; his own sons, he said, would take me. To this I replied that his offer had come too late. Wetere made no further effort to stop me but, on the contrary, provided me with letters of introduction to Wahanui and other Tuhuan chiefs. It was then I found out that Te Huia's was great, even in his own country."

We start up-river
"Next day we set out, Te Huia steering, myself sitting by him in the stern, with a large kit of ripe apples near at hand. At that time the Mokau consisted of a series of rapids alternating with long reaches of almost still water. The canoe was forced up the rapids by poling which was slow, laborious work. It took much skill to prevent the upsetting of the canoe in the impatient waters, rushing headlong to the sea between sheer walls and half-sunken reefs."

"A good deal of time was spent in examining the geological structure of the country as exposed in the rocky cliffs that bound the river on both sides and, in consequence of this, it was not till the evening of the fourth day that we arrived at Totoro."

"Most of the pas we passed were built on flat spurs that command a good view of the river and, as soon as we hove in sight though still far off, the Maoris recognising Te Huia's canoe set up the Native cry of welcome, "Haere-mai, Haere-mai, Te Huia"."

"The evening meal of pork and potatoes, cooked to perfection in the ancient Maori oven or umu, was a feast that would have tempted the daintiest epicure; for drink not tea but an abundance of cold water."

"As before mentioned we arrived at Totoro in the evening of the fourth day and set up our tent at the pa which was situated on the fringe of the forest belt."

"Te Aria, the local chief, had died the week before and his grave could be seen on the top of a little hammock not far off. In the evening his widow, Te Pani, came to my tent and talked with me till dark. In her own whare after our korero she started a tangi for her late husband, wailing mournfully the greater part of the night. I did not know then that eight months later I should listen to the tangi by the same voice at the same place. But of that more anon."

"Having finished my observation in the neighbourhood of Totoro we set out on the return journey which took a day and a half. This included three hours in examining the gorge of the Panirau which enters the Mokau some 12 miles from the sea. From Te Kauri I found my way back to Waitara without further incident of note. It was on this return journey at the Tongaporutu crossing that I first met Mokau Jones whose claim to the Maori lands to the south of Mokau, and subsequent long-drawn out litigation in England, form an interesting chapter in the later history of Taranaki."

The murder of Moffatt

"Some month or two back Sir Robert Stout gave a representative of the *Wellington Times* some interesting reminiscences of a journey made by him to the Maori settlement of Taumaranui in 1885; at that time and for long after, one of the most inaccessible parts of the King Country and one of the last to be occupied by Europeans. He journeyed on foot from Tokaanu to Taumaranui, along the old Maori trail followed by Hochstetter on his historic walk from the Upper Mokau to Lake Taupo in 1859. At Taumaranui Sir Robert met Ngatae, the local chief, who in 1881 caused Moffatt to be murdered."

"In the summer of 1885-86, while engaged in the geological exploration of the Upper Wanganui and Tuhua country, the Upper Mokau and headwaters of the Waipa, I also visited Taumaranui which I reached by an unusual route. Accompanied by a field hand I walked from Marton to where Hunterville now stands, and thence followed Murray's track to the Upper Hautapu. Here I found Tom Adamson, at one time a well-known member of the Forest Rangers, camped with his Maori wife in a beautiful glade. From there I journeyed to the Maori pa at Turangariri. Meeting with a cold welcome from the chief I continued on to Erewhon, near the headwaters of the Rangitikei, and thence followed the great transverse depression along the foot of the Kaimanawa Range to the Rangipo Desert, which I crossed, two days later reaching the Maori village at Karioi. I continued along a bush track to the place where Ohakune now stands, and there I met John Rochfort, explorer, pioneer and engineer, an old friend of my early Nelson days, at this time employed by the Government in a reconnaissance survey of the proposed Main Trunk railway."

"After leaving Rochfort's hospitable camp at Ohakune, I journeyed through the forest along the western flank of Ruapehu, eventually reaching the tussock-covered Waimarino Plain. Being by this time short of food, I travelled down the course of the Maunganui-a-te-ao to Ruakaka, a Maori village on the left bank. Save by a few old men and women, a boy and his young bride, the place was deserted. I asked if they would sell me a pig or potatoes but met

with the unexpected reply that there was neither pig nor potato in their possession. To stave off the gnawing hunger I asked an old man to set an eel-trap overnight. Before dark he caught a wood pigeon with a sniggle at the end of a long, thin pole, and with this baited the trap."

"In the morning the trap contained scores of small silvery-grey eels. These were coiled into flax baskets and cooked in an umu. When cooked they formed a tempting jelly-like mass, but alas, the Maoris had no salt and, in the weakened state of my stomach through hunger, my palate refused the unflavoured but dainty-looking food."

"After much talk I arranged with the Maori boy and his bride to take me down the Manganui-a-te-ao to the Wanganui and thence on to Pipiriki some 10 miles below the junction. At that time Pipiriki was a populous Maori settlement, and there I had no difficulty in hiring a canoe and eight Maoris to take me to Taumaranui, about 90 miles further up the Wanganui. The canoe journey took eight days, the rapids on the river making progress slow. At some places the canoe had to be hauled over the rapids with ropes while four men in the canoe with long poles kept in the proper channel."

"For the greater part of its course the Wanganui is hemmed in by vertical walls of Tertiary clays and sandstones. But here and there, at the upper end of a smooth reach, we found an alluvial beach on which we were able to set up our tents for the night. My usual practice was to start early and camp early so that a good supply of firewood could be collected and the evening meal cooked before nightfall."

"While the camp was being fixed up I took my daily swim in some cool deep pool, and daily the Maoris protested that it was not safe to bathe there as each pool was inhabited by a taniwha, a mythical monster like the water-kelpie of the Scottish highlands."

"Taumaranui, situated at the junction of the Ongaruhe, was in the mid-eighties one of the largest native pas in the King Country. The object of my visit was to examine the coal outcrops at Te Maire. This the local chief Ngatae would not permit me to do. He had, he said, no quarrel with me. In the week I stayed at the pa he became quite friendly and called me "te pakeha pai" but the Government, he said, was "no good"."

"Ngatae was a thin, slightly bent, ill-favoured old man with a grudge against the pakeha Government. He was a grim warrior of the old school. In 1881 he caused his young men to kill Moffatt who had before that been convicted and imprisoned for selling gunpowder to the Maoris. After leaving prison Moffatt found his way to Taumaranui where he placed himself under the protection of Ngatae."

"From Ngatae himself I gathered some particulars as to the killing of Moffatt. He also took me to the scene of the shooting and pointed out where Moffatt fell. From what I could gather from the old chief Moffatt asked leave to go to Te Kuiti but was told that he must not leave the pa. Moffatt persisted that he would leave at noon without permission. He accordingly set out and, as he walked along the narrow path across the fern covered flat towards the Ongaruhe, Ngatae's young men, hidden in the fern, opened fire at close range. He was hit at the first discharge. Leaning forward with his arms spread out before him, he cried, "kati, kati," (stop, stop), staggered on for a few yards and then fell mortally wounded. Thus died a man who was a traitor to his own race."

I again meet Te Pani

"Ngatae, though quite friendly, would not allow me to visit Te Maire and, as there was nothing to be gained by staying on at Taumaranui, I set out for the Wairere Falls and Totoro. We followed up the Ongaruhe, on the way passing a native woman weaving a flax mat on a frame of wood fixed to the ground with small stakes. The next day we crossed the Maungarahiri Range to the Upper Mokau and, two days later, arrived at the Wairere Falls where we camped near the limestone caves. The caves themselves were tapu and we were warned not to enter them."

The following day we walked down the valley to Totoro where we set up our tent on the site of our old camp. Te Pani was still alive and remembered my previous visit. As before she visited my tent and, till long after dark, talked about my wanderings since I had last seen her. In her own hut she wailed most of the night leading me to think that there had been another death in the family. In the morning I asked a Maori about Te Pani's tangi. He said that at the time of my previous visit she was mourning for her late husband. My return had brought the memory of her bereavement back to her and she was holding the tangi all over again. The Maori is certainly capable of strong and lasting affection.

Te Pani was a kindly old soul and provided us with plenty of food. The next day she set us on the old forest track for the Awakino Valley which we followed down to the sea. We spent a day at Te Kauri at the mouth of the Mokau and thence walked along the coast to Waitara. Altogether the journey from Marton to Karioi, the Upper Mokau to Wanganui, and Upper Waitara occupied about eight weeks.

IX. FIRST ASCENT OF RUAPEHU'S SUMMIT PEAK

The Professor's simple narrative of a great feat needs no introduction or embellishment.

"In the summer months of 1885-86, being at the time a member of the staff of New Zealand's first Geological Survey, I was instructed to carry out a geological reconnaissance of the little known territories at the headwaters of the Rangitikei, Wanganui and Mokau Rivers – territories lying mainly within what was officially described as "The King Country", which was in those days a refuge for disaffected natives and renegade pakehas. It was without roads or formed tracks and difficult of access being separated from the settled coastal areas by a deeply dissected forest-clad zone that, with a width of some 50 miles, extended without a break from the western slopes of the Ruahine Range to the north of Kawhia."

This narrative of his ascent of the highest peak of Ruapehu was, at the special request of the Editor, written for an Auckland quarterly.

"Though the span since the early 'eighties is relatively short, as counted in the pages of recorded history, such is the rapid advance of the pioneering axe in a new Colony that, at the date of my explorations, the Main Trunk Railway was only a name bandied by opposing political parties, while the many prosperous townships now strung along its tortuous route had not come into existence even in embryo."

"It was while employed in this reconnaissance that I made the ascent of the highest or summit peak of Ruapehu at that time, on the State survey maps, called "Paretetaitonga", but now simply "Ruapehu"."

"To reach the grass lands and ranges in the Upper Rangitikei I walked to the head of the Hautapu by an old Maori trail, locally called Murray's track, starting at the site where Hunterville now stands. I was accompanied by a field-hand, C. Dalin, and two led pack horses. After hard going for two days we emerged from the bush in a pleasant grassy glade, a few miles from the large native village Turangariri."

"From the Hautapu I travelled towards the east eventually pulling up at Erehwon owned by the Birch Brothers, two enterprising Hawkes Bay settlers. Their homestead became the base from which I carried out my examination of the Ruahine and Kaimanawa ranges."

"On December 24th, 1885, I started for Karioi which was reached on January 6th. Travelling along the foot-hills of the Kaimanawas I travelled the route followed by Beetham in March, 1878, and by Beetham and Maxwell in February, 1879. On arriving at the Onetapu Desert, Beetham and his parties took a bee-line across the desert to the source of the Wangaehu from which, as a base, they made their historic ascents of the northern peaks of Ruapehu."

"At the point where Beetham started the crossing of the desert I turned sharply to the south on the way passing the site of what is now Waiouru. Arrived at Karioi I set up my tents near the camp of A.D. Wilson, a senior officer of the Survey Department, who had been employed for some time carrying a chain of major triangles from Wanganui to the northern limits of the forest-belt."

"On the day of my arrival I informed Wilson that I intended to attempt the ascent of the summit peak which overlooked all the country to the south of Karioi. At this he expressed

much satisfaction for his great desire, he said, was to tie his triangulation on to Ruapehu. He agreed to send his cadet, Walter Dunnage, with me to assist in the erection of a trig signal."

"Accordingly we broke camp on January 7th (1886) and, following the edge of the bush, pushed on to the foot of the mountain where we camped at 4,000 feet above sea-level, close to water and an abundance of grass for the horses."

"On the morning of the 8th we set out at daybreak and, before the sun had risen, were far up the mountain's side. We made for the south-east peak (now known as Girdlestone Peak 8650) in the hope of finding a connecting ridge between it and the summit peak, but in this we met with disappointment. There was no connecting ridge and, to add to our trouble, the north face of Girdlestone Peak was an almost sheer wall which baffled all our attempts to descend it. By zig-zagging from ledge to ledge we succeeded in getting within 50 feet of the foot of the precipice but, here, further progress was barred by a wall of smooth lava that presented no projections for even a precarious foothold."

"In our descent we encountered a considerable mass of siliceous sinter impregnated with sulphur that had evidently been deposited by gaseous emanations from hot springs at no distant date. The name Ruapehu derived, so it seems to me, from rua "two, and pehu", a blow-hole from which steam or water escapes with a blustering noise, suggests the waning phases of vulcanicity as so often seen in areas of volcanic activity."

"Unable to descend to the ice-covered saddle below us, we retraced our steps to the top of Girdlestone and then ruefully descended to the foot of the Mangaehuehu Glacier which we ascended. Each member of the party was equipped with a well-shod alpenstock and heavy climbing boots and, although the ice-slope was excessively steep, we slowly and laboriously progressed upwards till we eventually reached the snow-covered saddle or col at the upper end of the glacier."

"The col was narrow and corniced on the north side, which was the steepest, and care had to be taken not to walk too close to the edge. Having passed the col we made good headway along the ridge leading up to the summit peak which, as already mentioned, is now called "Ruapehu", 9175 feet high."

"The whole country was obscured by a pall of smoke rising mostly from bush fires on the Taranaki side. Immediately below us lay the vast Ruapehu crater with its crater-lake at the bottom. The lake at the time of our ascent was covered with a sheet of ice and there was no appearance of hot water or steam."

"There was nothing to be gained by a prolonged stay on the summit and, without delay, we prepared for the descent. A stout beech sapling, which we had carried to the top, was driven securely into the frozen snow and to it we tied a ball of black calico. Our names and the date of ascent were placed in a sealed bottle and carefully stowed in a cairn of stones on a rock-ledge, about 20 yards to the north of the summit and about 15 feet lower."

"We now began the descent. The afternoon sun had softened the crust of the frozen snow. The steepness of the snow-field permitted "glissading" and, by this rapid mode of progression, we soon reached the lower limit of the snow. A rough, difficult walk of two hours over a tumbled mass of broken rock brought us safely back to our camp at 9.00 p.m.,

weary indeed after a 17-hour day of strenuous effort with the added concern of the unknown that lay ahead of us, but happy in the achievement of a task that we had set out to perform."

"During the succeeding three days Dunnage and Dalin suffered intense pain from snow-blindness, the fierce glare of the sun on the glistening snow, for many hours at a stretch having induced acute inflammation of the eyes. For the time being the sufferers, with bandaged eyes, had to remain indoors so it fell to my lot to act as cook and nurse besides attending to the tethered horses."

"On the fourth day Dunnage returned to Karioi while Dalin and I led our pack-horses round the south-eastern slopes of the mountain to the Onetapu desert, crossing many rough, boulder-strewn streams. On the way to Lake Taupo I examined Lake Roto-aire, Tongairiro, and Ngauruhoe. After spending a few days at Tokaanu and Waihi I began the return journey by way of the Rangipo desert and Hautapu to Marton, our starting point, altogether a long trek in ideal summer weather."

"It now remains to say that to Beetham and Maxwell belongs the honour of the first authentic ascents of the northern peaks of the Ruapehu mountain mass, and discovery of the great crater with its crater-lake, up till then unknown to Maori and Pakeha. They were intrepid explorers and painstaking observers. Their delineation of Ruapehu's major features was so accurate that nothing of moment has been added to their work in the past 55 years. It fell to my good fortune to make the first ascent of the summit peak of this gigantic volcano."

"It may be noted that the official narrative of my ascent of the summit peak and the report of my geological observations are contained in *Transactions of the New Zealand Institute*, Vol. 19, pp. 327-331, 1887; and in *Reports of Geological Explorations*, pp.24-73, 1886-87."

The cutting of tracks through the forest and the provision of huts has now made the formidable Ruapehu the playground of the North Island.

X. THE TARAWERA ERUPTION AND AFTER (1886)

At nine in the forenoon of June 10, 1886, almost before he had settled down to work, Park's room in the Colonial Museum was invaded by Sir Robert Stout, Premier, and Sir James Hector, who announced the startling news that a terrific volcanic outburst had occurred at Tarawera and Rotomahana somewhere about the hour of two that morning. Park exclaimed, "But surely that can't be true" to which Stout gravely stated that it was only too true, for urgent telegrams had come to him from Rotorua, informing him that there had been great destruction of life and property, and that the continuance of violent activity at many new craters and the constant earthquakes were causing serious alarm among the inhabitants, many of whom were preparing to flee to the Waikato and Auckland for safety. The Premier then went on to say that he had instructed Captain Fairchild, Master of the Government Lighthouse tender *Hinemoa*, to get steam up immediately, and to be prepared to sail on the shortest notice.

Park, afterwards when describing this scene in his room on the fateful morning, wrote: "At this point Hector asked how long it would take me to get ready to board the boat, to which I replied that I could be ready in an hour. At this, Stout, turning to my chief, said "I am sure the public would like you to be on the spot as well as Park". Without ado Hector agreed to accompany me and in an hour and a half we were both on board.

The *Hinemoa* raced at full speed for Tauranga, which we reached about noon of the next day, that was June 11. After rounding East Cape at an early hour in the morning, the decks became covered with a thin coating of grey-coloured dust – this our first evidence of the reality of the catastrophe. We steamed close to White Island to see for ourselves the condition of its crater-lake and found there was no unusual display of thermal activity, that is so far as we could judge.

At Tauranga the ground was covered with a coating of grey dust from a quarter of an inch to half an inch thick and the cloudless sky had a peculiar, leaden-grey colour. A dim half-light prevailed and there was an uncanny hush over everything. All business and all traffic were at a standstill and the townspeople spoke in low tones, moving about in a state of stress and expectancy, as if half afraid that the fate of Wairoa might overtake them at any moment.

With as little delay as possible we hired a special coach and four horses to take us to Rotorua. We did not wait to have a meal but set out at once, accompanied by Spencer, a skilled landscape photographer then in business in Tauranga. We followed the old bush road to Rotorua which we reached about seven in the evening of the same day.

On mounting the crest of the range overlooking Rotorua, suddenly there burst before us a fine panoramic view of the whole region that had been riven and overwhelmed by the catastrophic outburst of the day before. Intense volcanic activity still prevailed from Tarawera far to the south and a dense column of steam rose heavenward from the site formerly occupied by Lake Rotomahana. It was certainly a weird and uncanny sight and I for one wondered what fate had in store for us in the adventure we were about to take into what looked to us like a raging inferno.

Rotorua, we found, was simmering with excitement. All the white women had been sent out of the town with the exception of Mrs Graham (afterwards Mrs Grierson) the hotelkeeper's wife. The boom of the explosions at Tarawera could be heard at intervals. During the night the frequent earthquakes, severe and disturbing, caused most of the men to pace the streets, preferring the intense cold in the open to the comfort of bed, with the possibility of the house collapsing or a chimney falling on their head.

For about thirty-six hours the eruption was preceded by subterranean rumblings and noises that attracted little attention as nobody could know or guess they were the portent of coming disaster. The cataclysmic outburst took place at about 2:00 a.m., on the morning of June 10th, being accompanied

by a terrifying roar at the moment the mountain and plateau were riven in twain. From a chasm nearly nine miles long there issued lava, dust, steam and gases with frequent earthquakes, and the deafening noise of the explosions and escaping steam was bewildering and deadening to the senses.

In his "Textbook of General Geology", 2nd edition, 1925, describing the Tarawera eruption, Professor Park writes:-

> "The Tarawera eruption in New Zealand took place in June, 1886, and was preceded by little or no warning. In a few hours after the first terrific outburst, the mountain and plateau at its base were rent with a gaping fissure nearly nine miles long. The volcanic energy soon became concentrated in numerous independent centres of explosive activity along the fissure, from which there issued continuous showers of fragmentary matter and enormous volumes of steam. The dust was spread over 10,000 square miles of country, overwhelming forests and native villages and converting the country into a weird grey wilderness. Immense volumes of steam were condensed into rain which, uniting with the falling dust, formed a plastic mud that broke down the forest trees and buried the hapless villages lying in the track of the powerful winds that accompanied the eruption."
>
> "The sounds of the explosions were heard at Christchurch, over 400 miles away. They resembled the detonations of cannon or violent blows on the side of an empty tank. It was during this eruption that the far-famed Pink and White Terraces at Rotomahana were destroyed."

Besides accompanying Sir James Hector to the scene of the eruption in June, 1886, Professor Park examined the same region on three separate occasions, namely in June 1900, June 1909, and March 1910 (on these dates also visiting White Island) with the object, as he described it, of observing the progressive changes in the topographical features arising from the denudation of the covering of volcanic ash, that ranged from nothing to 50 feet in thickness, according to the distance from the centre of eruption, and to study the growth of the new vegetation that was establishing itself on the dust-covered wilderness.

His paper "On the Tarawera Eruption and After" appeared in the Geographical Journal (Vol. XXXV, 1910) and, reviewing it, Professor J.W. Gregory of Glasgow University said it was the best description of the eruption that had been written. In one place in this article, referring to the destruction of native villages and forests, Park says:

> "The native village at the Pink Terrace, on the shore of Rotomahana, being situated on the edge of the fissure-rent, was blown out of existence, and the inhabitants, eleven in number, were instantly killed. The native villages at Te Ariki, Moura, and Te Wairoa were overwhelmed with dust and mud, all the inhabitants of the first two being killed, namely fifty-two natives at Te Ariki and thirty-nine at Moura. The fourteen killed at the Te Wairoa included several Europeans."
>
> "As a result of the eruption the hills and valleys adjacent to Rotomahana were covered with a smooth sheet of grey ash, the thickness of which could not then be ascertained. This once smooth mantle has become, in recent years, scored by the rain into narrow V-shaped ridges and corresponding gutters that furrow the slopes from top to bottom. Outside the furrowed area, which lies close to the seat of volcanic activity, the ash is now covered with a dense jungle of vegetation consisting mainly of bracken, tutu, veronica, tree-ferns, and many forest trees, among which the blue gum and prickly acacia of Australia are conspicuous. It was some three or four years after the eruption before vegetation began to establish itself, but since the year 1890 the growth has been rapid, many of the gums at the buried village of Te Wairoa having grown to a height of over thirty feet."

Writing of his visits to the scene of the Tarawera eruption in June, 1886, Park continues:

> "At the time of my visits to Mount Te Hape-o-Toroa, situated on the edge of the fissure overlooking Lake Rotomahana and commanding a perfect view of the whole field of volcanic activity, the vents on Mount Tarawera, at Rotomahana, Black Crater, and Echo Crater were centres of great activity from which thousands of boulders were being projected into the air, some in their descent falling over the crater rim, where they piled up in confused masses. But the majority fell back into the throats of the vents where they were churned up by the escaping steam until again tossed out. The steam issued from the vents with a terrific continuous roar; and the descending blocks of rock struck the ascending masses with shattering violence, the united effect being stupefying and overpowering. At short intervals, that rarely exceeded twelve minutes, there took place heavy underground bumps – such as might be caused by subterranean explosions. These were instantly followed by short, sharp earthquakes of such violence that it was, after a time, deemed advisable to withdraw to the vicinity of the Black Crater, as there seemed to be an imminent danger of the hill being precipitated into Rotomahana Crater."

Referring to the psychological effects of the eruption, he says:-

> "The effect produced on those witnessing this grand display of plutonic force at short range was diverse. At first some became hysterical but, in time, all relapsed into a subdued mood of indifference followed by a stupefying languor. It is not improbable that the stupor was in part caused by the presence of carbon monoxide in the gaseous emanations of the craters."

> "The chief centre of activity at this stage was the Rotomahana vent, from which there issued a vast pillar of steam that reached to a height of over 15,000 feet. After a few months of violent hydrothermal activity, solfataric action gradually waned, and in time almost ceased, thus permitting the crater to fill with water, forming a new and weird Rotomahana, with scarred steaming walls many times the size of the old lake. Things remained in this state till about 1897, when geysers again began to play."

XI. EXPLORATION IN RED HILL COUNTRY, NW OTAGO (1886)

Professor Park has always maintained that his exploration of the high inaccessible ranges between the Dart River and Big Bay, and between Big Bay and Red Hill country at the sources of the Pyke Cascade and Arawata, was the most strenuous of all his mountaineering travels. There was constant danger from flooded rivers, snow-storms, blizzards and rock-falls or avalanches. And, being so far from settlements, there was always a shortage of food.

In a lecture to the Otago Institute on July 11, 1922, on "Maori and Early European Explorations in Western Otago" Park furnishes a fascinating narrative of his travels among these trackless and inhospitable ranges, made as far back as 1886, that is 45 years ago. Several attempts have since then been made by large, well-equipped parties to follow his trail, but all have returned without getting beyond the fringe of the area he explored and mapped. To the members of the Institute he said:-

"In the Spring of 1886, acting under instructions given by John Ballance, Prime Minister, I explored and geologically mapped the block of mountains lying between the Dart Valley and Big Bay, including the Bryneira, Olivine Barrier, and Red Hills ranges, and the high country at the sources of the Arawata and Cascade Rivers."

"I left Queenstown on the 6th November, and the same day reached Mr Mason's house at Paradise. At Glenorchy I laid in a stock of provisions and arranged with Harry Birley to pack my gear to Sylvan Lake. In consequence of the Dart River being swollen with flood waters we were compelled to stay under Mr Mason's hospitable roof till the 9th. On the 7th, accompanied by my field assistant, Courtenay Seymour, I ascended Mount Alfred, and on the 8th Mount Earnslaw ridge to a point due east of the mouth of the Beanburn. At a height of 8250 feet, we obtained a fine view of the summit glacier and of the Barrier Mountains to the west of the Dart Valley. The summit of Mount Earnslaw was surmounted for the first time by Mr H. Birley in 1889."

"On the afternoon of the 10th, we crossed the Dart and in the evening pitched camp a mile north-west of Sylvan Lake. The next day Birley returned to Glenorchy. The same day, carrying heavy packs, we struck through the forest till we reached the Rockburn Gorge. Following a track blazed twelve years previously by Messrs McBride and Robinson, of Kawarau Falls, we reached the upper basin of the stream before nightfall and fixed our camp under a huge morainic boulder lying in the floor of the valley. The next day we returned to our first camp for the remainder of our provisions. On the 12th we ascended Mount Cosmos, 8150 feet, the snow-covered summit of which was reached after a difficult passage across a large ice-field scored by deep crevasses. The ascent from the Rockburn basin was very steep, and the distance to Cosmos greater than anticipated, so that we did not reach the top till three in the afternoon. On all sides we seemed to be surrounded by a sea of high snow-clad ranges and mountain peaks. It is generally conceded that the best time of the year for mountaineering in the Southern Alps is early in March when all but the permanent snows have disappeared. An early ascent has the advantage that the drifted snows of winter fill many irregularities thereby making the travelling smoother. We got to the summit from the east side and returned by the west, the detour being made so as to obtain a safe foothold in the frozen crust of snow as it softened under the influence of the western sun. The return journey took six hours."

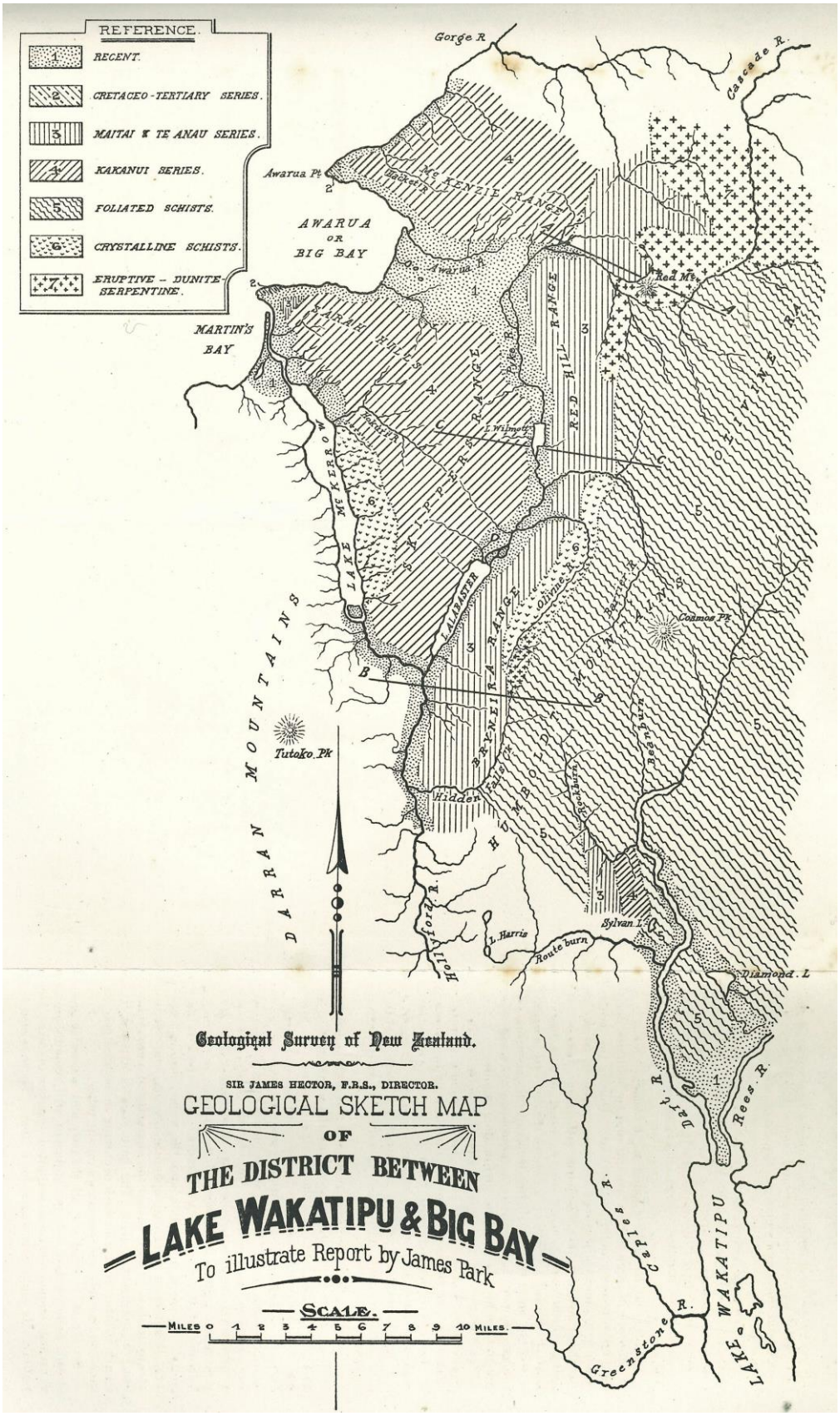

Figure 5. Geological map of the Red Hills area (from *Reports of Geological Explorations 18*, 1887)

"On the 18th we crossed Park's Pass, 4500 feet at the source of the Rockburn, and camped on the bank of Hidden Falls Creek at the foot of a large slip some two miles from the Olivine Saddle. At this place we pitched a stout tent for the protection of our main stock of provisions. Two days later we started for Big Bay with four days' rations. We followed the Hidden Falls Creek to its source, crossed the low, peaty saddle, and travelled down the Olivine Gorge till our passage became blocked by enormous blocks of rock that had fallen from the overhanging mountain walls to the east. We wasted many precious hours in scrambling over or crawling under the blocks. Not till we found the task impossible did we desist. Reluctantly we retraced our steps and once more returned to the Olivine Saddle. An ice-cut notch in the Bryneira Range, 6000 feet, seemed tempting, and accordingly we scrambled to the crest of the range at this point with the view of reaching a camping ground in the bush on the western slope. We began the descent without delay and got to the bush-line about six in the evening. The forest was, we found, carpeted with a great depth of sphagnum moss covering loose blocks of stone. In the hope of finding water we continued the descent till darkness overtook us. Our search for water being still unsuccessful, we blundered on through the darkness till we suddenly caught sight of Lake Alabaster glimmering through the trees below us. Soon after this we pulled up on the top of a steep declivity overlooking the lake. It was now nine and too dark to find a way down to the edge of the water. Weary and hungry, with our backs to the mountain and our faces to the lake, we sat down on a ledge of rock to await the coming day. Up till midnight we watched the starbeams over the tree tops playing on the rippling water below and listened to the challenging screech of the kakapos that prowled around us as in angry protest at the unwanted intrusion of their solitudes. Two hours after midnight the sky became overcast and, at three, there began a cold, drizzling rain. The only shelter we carried with us was a thin calico fly, and this we pulled over our heads. Thus we sat till the dawn. Stiff and cold we started off at five and, within an hour, reached the flat ground at the head of the lake. The rain now came down in torrents. With the ground soaked, and the bush dripping wet, it was fully an hour before we succeeded in getting a camp-fire going. A meal of steaming porridge mixed with Liebig's extract of meat put us in good spirits. Here we set up our fly and spent the remainder of the day drying our clothes and camp gear."

"On the 21st we travelled up the valley hemmed in between the mountain wall on our right and the Pyke, now swollen to a torrent, on our left. The flat is only about a hundred feet above sea-level, and covered with mixed bush; but the going was not difficult and, on the 11th, we passed the Olivine Falls. Here the Olivine River plunges into the Pyke Valley from a hanging valley, or notch, in the Bryneira Range. For many hours before we arrived at the falls we could hear a sullen roar which we thought must be thunder or the noise of many avalanches falling down the mountain side. When we reached the falls we found that the roar was caused by the river tumbling bodily from a height of 80 feet into a deep pool in the floor of the valley. As the discoverer, I called these falls the Olivine Falls. Here we have an easily harnessed waterfall, capable of developing 10,000 horse-power, that will in time to come be a valuable asset to the Martin Bay and Wakatipu country for the generation of electric energy."

"In the evening, we reached Lake Wilmot, a beautiful sylvan lake with a little shrub-covered flat, at the top end. Here we forded the Pyke by wading up to our armpits. From Lake Wilmot, we travelled up the west side of the Pyke, and the going was slow and painful. The flats consist of alternating stretches of bush-covered nigger-head swamp and dry patches tangled with supple-jack and bush-lawyer. For four days we had to hew our path through the jungle with bill-hooks and, though we worked from daylight till dark, the rate of progress seldom exceeded two miles a day. Long before we arrived at the natural clearing opposite

Big Bay, Courtenay's trousers had been torn to ribbons, and he had been forced to don his blanket as a kilt. Courtenay was not endowed with much patience and, when it came to a tug of war between the lawyers and his garments, the former always had the best of it. Leaving the Pyke behind us, we once more entered the forest and made a bee-line for Big Bay which we reached on the 25th. The ground between the Pyke and the Awarua is so low that we only became aware we had come into the watershed of the latter by noticing that the streams were running to the west instead of towards the Pyke."

"The country between the Pyke and Big Bay consists of swampy flats and low, undulating ground. The piles of morainic material on the shores of Awarua Bay mainly derived from the Red Hill country show that the Pyke glacier at one time found its way to the sea at Awarua Bay. The existing Awarua River is undoubtedly the relic of the Pyke River when it flowed direct to the sea. The diversion of the Pyke to the Hollyford River was probably caused by the formation of an ice-dam or morainic mound on the Awarua Flat. Prior to this a tongue of ice from the Pyke Glacier had already eroded an easy channel towards the south. Here we have a fine example of a river selecting the longer for the shorter course to the sea, a consequence of river pirating."

"For the last three days we had lived on quarter rations and arrived on the coast feeling anything but fit."

"Four weeks before our arrival the *Hinemoa* had landed some sixty or more prospectors at Big Bay and, from them, we obtained a good supply of food. We set up our fly near the beach close to Maori Bill's whare and spent three days in a survey of the steeply-faulted Tertiary strata at the north headland."

"On the 28th November, carrying food for five days, we started on the return journey by way of the Barrier Range. We followed a well-blazed track to the upper part of Grassy Flat on the Pyke and in the evening camped on a spur leading up to the headwaters of the Jerry River. The next day we mounted to the high grass lands above the bush-line and, after travelling towards the north-east for some miles, eventually dropped into the head of the Cascade River. Following up this stream, we unexpectedly came on a large deserted camp consisting of two tents pitched face to face with a fly stretched over the opening between them. Under the fly there was a rude table with a rough timber stool on each side. We inspected this camp with no little curiosity and found everything in good order. There was a large supply of food. In the camp-oven there was a batch of bread and all the evidences pointed to the hurried departure of the late owners. The mining picks, shovels, and drill steel lying around proclaimed that this was a well-found prospectors' camp. On looking around we found that prospecting had been attempted in a white slip not far distant. Curiously enough there was not a scrap of paper or anything to be found that would indicate who the owners were, what they had hoped to find by digging in the toe of a loose talus of rock, or what led to the hurried leaving. When we returned to Big Bay, Maori Bill was absent on some foray of his own, and it was not till twenty-eight years later that I was able to gather any information as to this lonely mountain camp. In 1914, in a talk with Captain Hanning, of the s.s. *Waikana*, I referred to this deserted camp in the Red Hill country, and was not a little surprised when he said that he himself was one of a party of six prospectors who, in 1885, camped at the head of the Cascade, sent there, if I remember him aright, by an Invercargill syndicate to prospect for platinum. Their supplies were landed by steamer at Big Bay and carried inland by relays. The cause of the hurried departure was what I had supposed it to be. One day snow began to fall and, in fear of being snowed in for the winter and perishing through cold and lack of

food, they gathered up their personal belongings and left hotfoot without even waiting to tie the strings of the tent flaps. That was, I think, in March, 1885, or eight months before the date of my visit. Thus, after many years, was solved a mystery that I had often mused over when camped among the alps of the south."

"With many a backward glance at the deserted camp, and not by any means exhilarated by its loneliness and our speculations as to the fate of its owners, we kept on our way and at sunset reached the Cascade glacier where we camped for the night."

"The next day we ascended Red Hill, and then crossed to the ridge overlooking the broad, shingle-covered valley of the Arawata River, where we camped. The following three days were spent in a fruitless endeavour to follow the Barrier Range with a view of eventually reaching the Olivine Saddle and our main camp in Hidden Falls near Park's Pass leading into the Rockburn. The range was, we found, a deeply serrated razor-back as narrow as the ridge of a house and impassable even for a goat. The slopes to the east and west were so steep that they afforded no foothold. In the hope that the going might become easier we scrambled along the eastern slope, at a height ranging from 500 to 1000 feet below the crest, till brought up by sheer walls of great height. It was now clear that the Barrier Range well-deserved its name, so we reluctantly retraced our steps for two miles or more and then scaled a chimney leading up to a gap in the crest of the range. A descent by a chimney on the west side brought us into the head of the south branch of the Pyke River, with our food almost exhausted. In the following two days we crossed the ridges separating the various tributaries of the Pyke till we came to the Red Hill branch which we followed down to Grassy Flat, whence we struggled back to Big Bay on the 5th December, tired out and with our belts drawn very tight."

"After examining the south side of Awarua Bay we walked to Martin's Bay, accompanied by a party of prospectors of whom Carey and Hyndman are the only two whose names I can now call to mind. At Martin's Bay we lodged with a settler named Webb, whose wife regaled us sumptuously on fresh meat, home-made bread, and succulent spinach, a most welcome change from our monotonous diet of oatmeal and Liebig's meat extract during the preceding five weeks."

"Having completed my observations at Martin's Bay, Webb took us by boat to the head of Lake McKerrow. That was on the 10th. In the afternoon we crossed to the left bank of the Pyke in a shallow wooden box suspended from a fixed wire rope. Here we camped for the night. The same evening three prospectors on their way to Queenstown set up their tent near us. In the morning we found our fly covered with two inches of freshly-fallen snow. From here our route lay across the Bryneira Range to our main camp near the head of Hidden Falls Creek, and thence across Park's Pass to the Rockburn Valley which was followed down to the Dart Valley. I failed to persuade the prospectors to accompany us across the mountains. They preferred the well-beaten, though longer, path by the Hollyford Valley and Greenstone to the shorter, but hitherto untrodden, route I offered them. So here we parted company. As it turned out, we reached Queenstown four days ahead of them. On the morning of the 11th, after drying our fly before a big log fire, we began the ascent of the Bryneira Range, which meant a steady rise from less than a hundred feet above sea-level to a height of some 6000 feet. Though fairly steep, the going through the open beech forest was easy, and nothing worth mentioning happened till we came near the upper limit of the tree-belt. Here the flattened tops of the trees were covered with snow and, as the day advanced, calm and sunny, large patches of snow began to drop from the branches. Burdened with packs we could not

easily dodge them all: and by the time we had reached the bush-line at 4200 feet we were drenched to the skin. Early in the afternoon we reached the flat-topped summit of the range, from which we obtained an unrivalled panorama of the west coast of the Darran Mountains with Tutoko and Christina, the first of which seemed to be remarkably close to us, of the Humboldt Mountains to the east, and of the Olivine, Barrier, and Red Hill Ranges to the north."

"The walking on the bare, even crest of the range was easy and we made good progress. A cold south-west wind now came off the snows of Tutoko, but it was behind us. As the afternoon wore on the wind increased to a gale and the temperature dropped suddenly. Our clothing, not yet dry, began to freeze and the stiffness of our trousers compelled us to walk with short, jerky steps. After a time Courtenay began to complain of a great pain in his legs below the knee. In an hour his lower limbs had swollen to four times their normal size and what were small skin scratches were now fiery-looking wounds. As he was suffering greatly I left the wind-swept summit and dropped down the eastern slope. Fortunately we were now almost opposite Park's Pass and, after three hours of unsteady zig-zagging down the steep slope, we eventually reached our main camp. All that I could do to help my companion was to relieve him of his pack and steady him in the more difficult places."

"A blazing camp-fire and a meal of piping-hot porridge mixed with Liebig thawed us and soon put a different complexion on the state of Denmark. Next morning, though with legs still swollen and painful, Courtenay pluckily assayed the ascent of Park's Pass. Progress was slow but, before nightfall, we reached the fringe of the bush in the Rockburn Valley where we camped for the night. At daybreak on the 13th I set off by myself for the Routeburn Station which, by a forced march, I reached in four hours. Returning with two station hands, we brought Courtenay down to the homestead before dark. Two days later we reached Queenstown after an absence of almost six weeks. When we turned up we found that some of the townspeople, becoming anxious about our long absence, were about to take steps to organise an expedition to find out what had become of us. After two weeks' medical treatment at Dunedin, Courtenay followed me to Wellington, apparently none the worse for his great adventure in the blizzard from the snow-fields of Tutoko. The topographical and geological results of this expedition are set down fully in the official reports of the Geological Explorations for 1886."

XII. GEOLOGICAL EXPLORATION OF COLLINGWOOD COUNTY (1888 – 1889)

The exploration and survey of Collingwood County occupied the summer of 1888 and the autumn of 1889 from March till May. In his narrative of the autumn expedition, referring to the unfavourable conditions for exploration among the ranges, Park writes:-

> "The country covered during this trip was very high and broken and, on account of the severity of the weather, due mainly to the lateness of the season, great hardships were endured from beginning to end. From the 26th April to the 1st May the frost was unusually severe, the tents and all our outer bed-coverings being frozen every night, while the lakes and lagoons were covered with ice the whole time. Heavy falls of snow took place on the 30th April and 1st May, and added greatly to the difficulties encountered in getting about. The results obtained were, however, highly satisfactory as I spared no pains or trouble to obtain information where it was necessary. Besides defining the boundaries of the Silurian and Devonian formations, and the extent of the granite, I collected a large amount of topographical information and data relating to a country of which but little was formerly known, and which has enabled me to fix the limits of the different formations with tolerable accuracy."

Further on he states that the area examined during the progress of this survey extended from the Motueka northwards to Cape Farewell, and from Golden Bay westward to Mount Arthur Table-land and Heaphy River on the west coast.

Continuing his narrative he says:-

> "The whole of this region is occupied by high mountain-ranges, generally covered with dense forest vegetation, and very often rugged and broken in outline. All the main ranges converge to a point at the sources of the Aorere, Cobb, and Heaphy rivers, culminating at the Douglas Mountains, which extend from the sources of the Cobb to the sources of the Boulder and Clark rivers, maintaining throughout their entire length an average elevation of 5300 feet."

In the high country there were no tracks, and all camp gear and food had perforce to be carried forward by Park and Henry Haywood, his only field-hand.

Describing the physical features in detail, Park mentions that the great Pikikiruna Range, after passing the saddle on the road from Riwaka to Takaka:-

> "Sends out a large number of broad descending spurs or secondary ranges, whose upper surface presents the appearance of a great sloping, fan-shaped plateau, deeply excavated by numerous streams into square or broadly-rounded ranges, which reach the sea at various points between Golden Bay and Riwaka. Between Motupipi and Riwaka these wide, sloping ranges occupy an area of thirty miles wide, and in their structure and general orographical features present a striking resemblance to the extreme south-west portion of Otago."

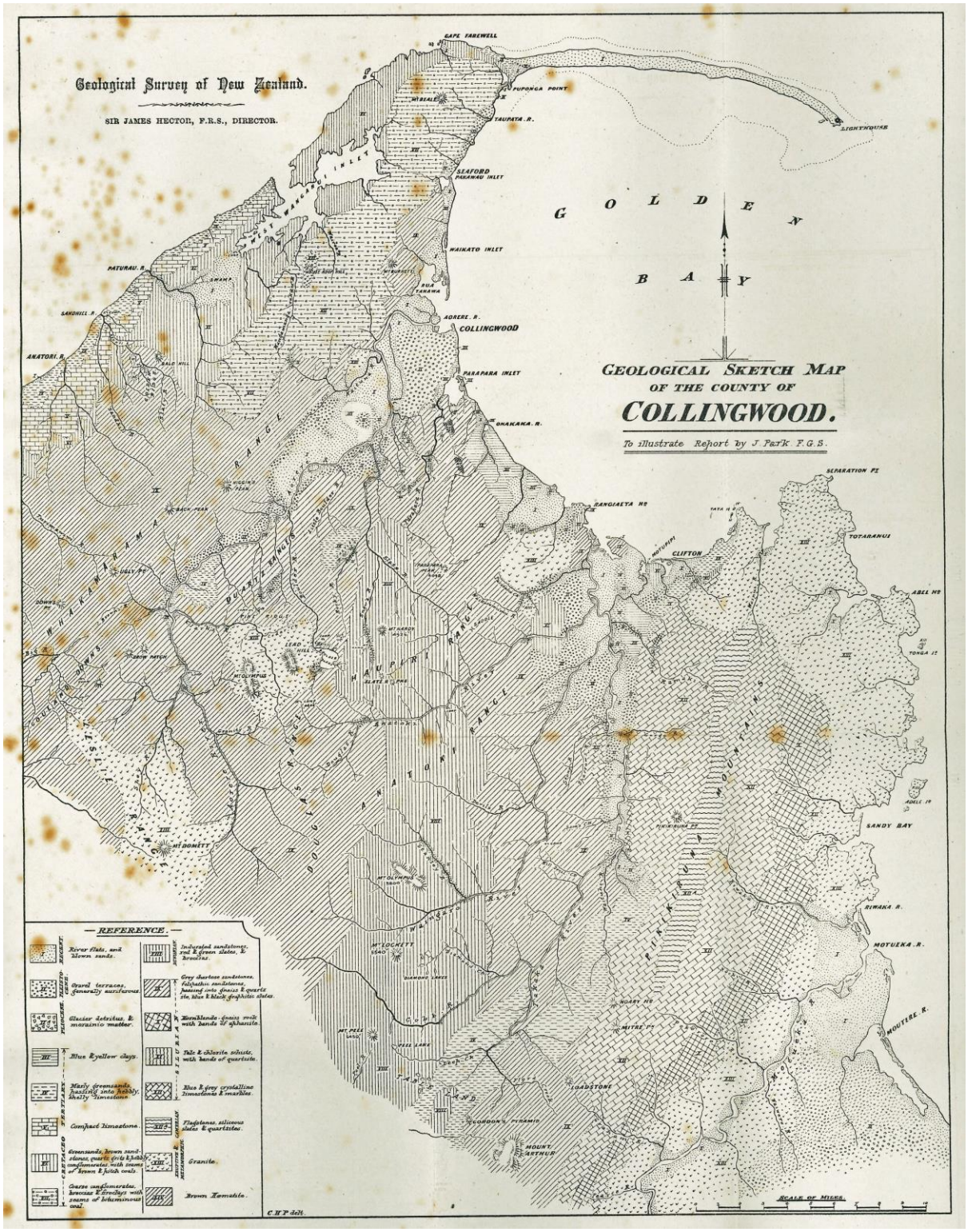

Figure 6. Geological map of Collingwood county (from *Reports of Geological Exploration 20*, 1890)

Here we have evidence that Park possessed a keen eye for topographical features, recognising a tectonic structure that, in later years, was to become the dominant note in the study of tilted block-mountains in many parts of the world. Many years after, Park described in detail the block-mountains of Central Otago to which, as above quoted, he referred in his Collingwood report.

He was a close student of the work of the American geologists, Hayden, Powell, Gilbert and Dutton, and did not fail to apply their brilliant generalisations relating to the genesis of large forms to New Zealand.

While in England in 1912, Professor Park was the guest of Sir Archibald Geikie FRS. at his home in Shepherd's Bush and, when discussing mountain structures with him, that veteran geologist displayed the keenest interest concerning the flat-topped, tilted block-mountains of Otago described by Park in his geological bulletins. At a later date the Professor referred him by letter to the Collingwood tilted blocks, and in reply Geikie wrote:-

> "I have read your Collingwood report with great interest. I think it most commendable …… Your discernment of the Pikikiruna tilted block so long ago as the 'eighties was certainly of noteworthy and far reaching deduction."

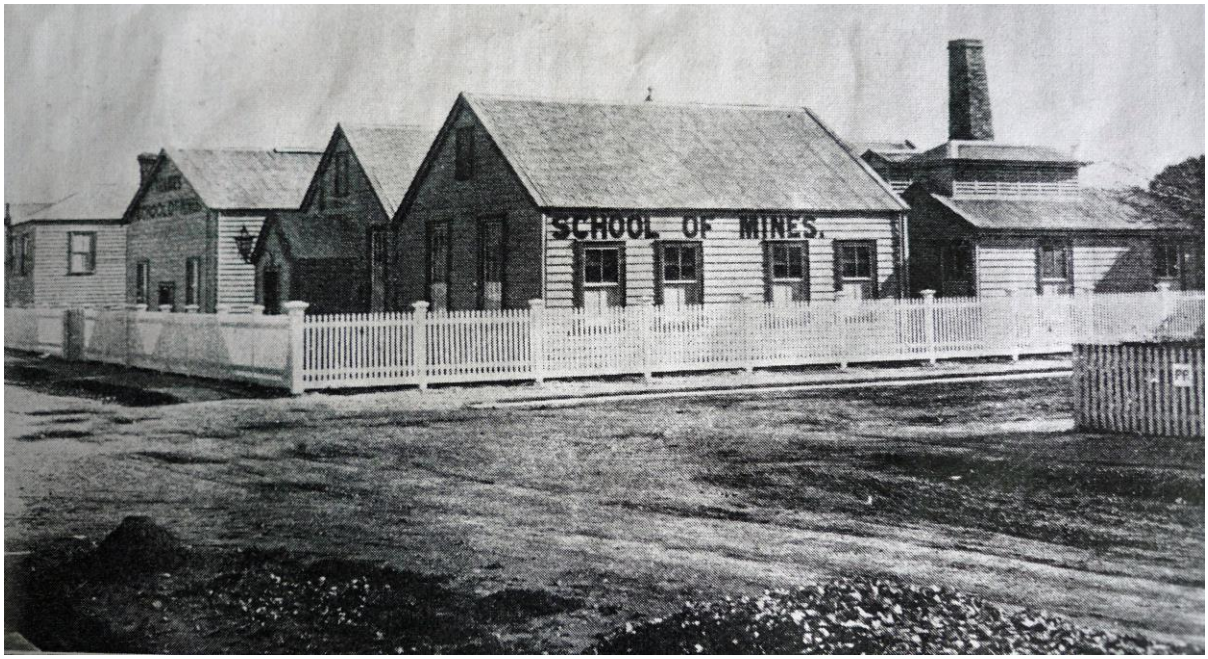

Figure 7. The Thames School of Mines opened on its current site in 1886, shortly before Park was appointed Director in 1889. During his period in charge there was an active building programme, including the installation of a cyanide processing plant, and the school was progressively enlarged. This image was taken about 1900, a few years after Park had left. *Thames School of Mines, Syllabus for 1901*.

Figure 8. The Thames School of Mines in 2017. On the outside it is virtually identical to the 1901 view. With a decline in the mining industry, the school closed in 1954, and the buildings were acquired by the Historic Places Trust in 1979. It is open regularly to visitors, and several of the rooms have been preserved much as they would have been when Park was Director.
Photo: S. Nathan

XIII. HAURAKI GOLDFIELD DAYS (1889 – 1900)

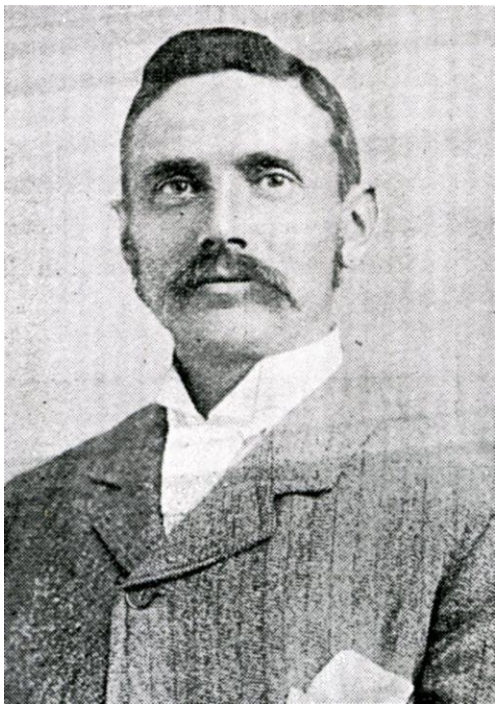

Fig 9. James Park, aged about 40, when he was working for the Anglo-Continental Syndicate *Auckland Weekly News*, December 1898

In the winter of 1889 the Mines Department offered Park the post of Director of the Thames School of Mines. After personal enquiry at the Thames he accepted the position which also carried with it the general superintendence of the State Mining Schools at the more important mining centres in the Hauraki Peninsula.

His career at the Thames was marked by great zeal and, in his hands, the Mining School rose to a place of eminence among the Mining Schools of Australia and New Zealand. Scores of mining engineers, mine managers, geologists, metallurgists, and surveyors passed through his hands and many of them have risen to eminence in the mining world.

He held this position till the autumn of 1896 when he was appointed Consulting Engineer to the Anglo-Continental Syndicate of London. After the retirement of Henry A. Gordon in 1898 he became General Manager of a group of gold mines at the Thames that had been 'floated' by different interests in London. On behalf of his principles he carried on mining operations at Karangahake, Waihi, Coromandel, Reefton, and Central Otago.

The New Zealand Advisory Board of the Syndicate was composed of four members, namely A.G. Horton, a founder and Managing Director of the *New Zealand Herald*, Auckland; W.T.L. Murray, Manager of the BNZ, Auckland; Right Hon. Richard J. Seddon, P.C. Premier of New Zealand; and James Park, the Syndicate's General Manager and Attorney, who was Convenor and Chairman.

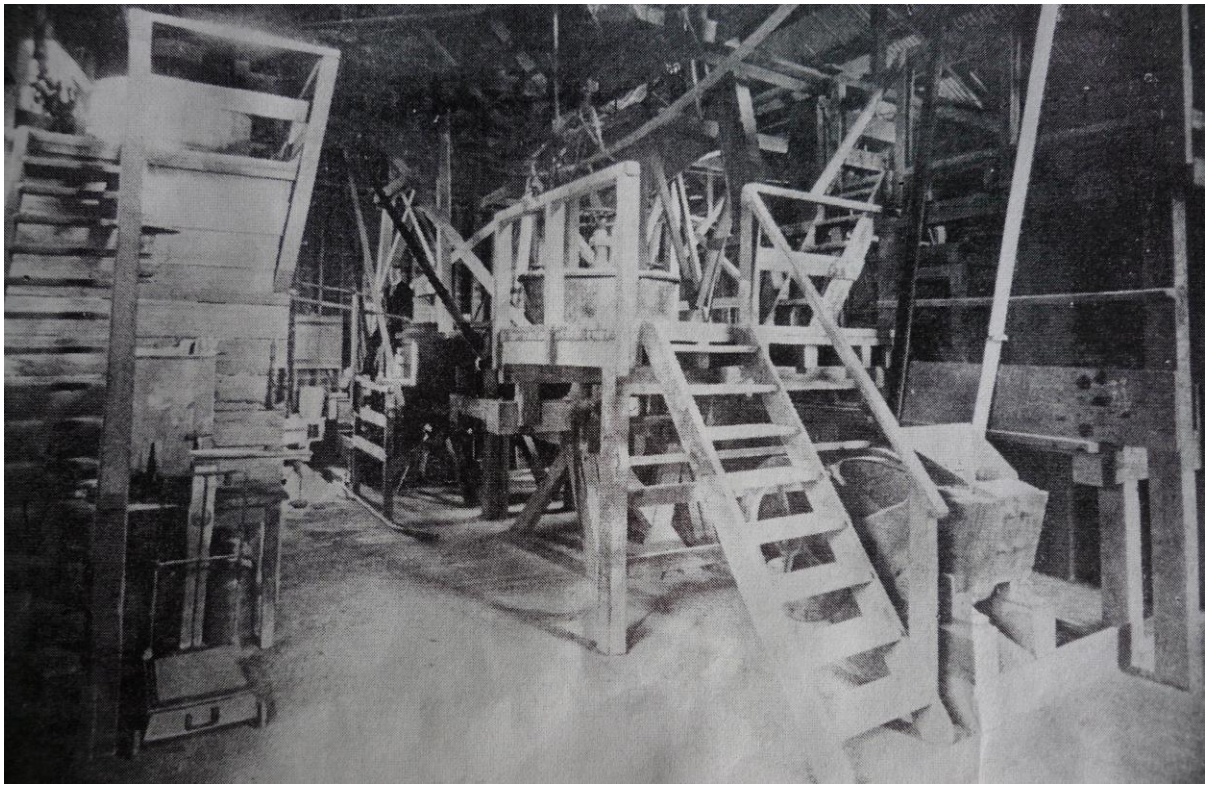

Figure 10. Battery room within the Thames School of Mines, where ore was crushed.
Thames School of Mines, Syllabus for 1901

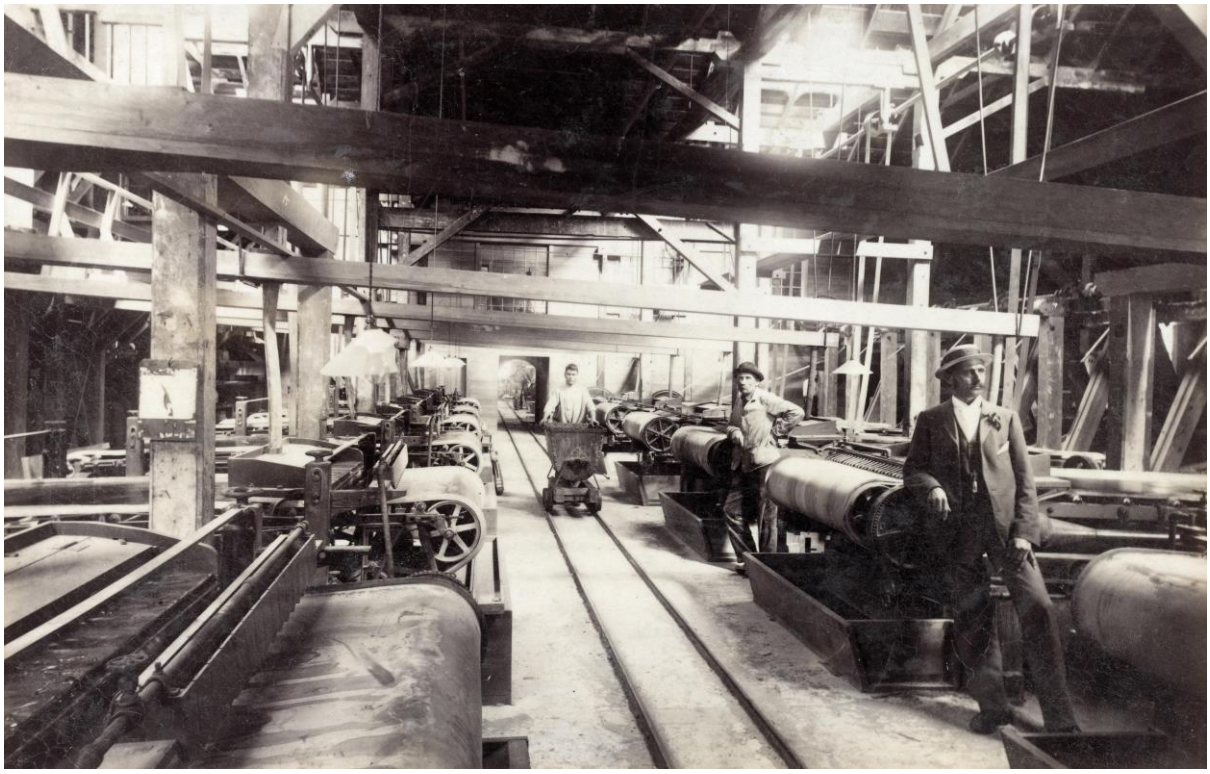

Fig 11. James Park (right) at the Moanataiari Battery in 1898. At this time the Moanataiari battery was one of the most up-to-date processing plants in the Thames Goldfield, including Vanner tables on the left and a cyanide treatment plant.
Hocken Collections, University of Otago, S16-524f

XIV. A HUNT FOR FOSSILS WITH A SEQUEL

The lure of scientific research was in James Park's blood and he followed up the scent of a mineral or fossil discovery with a zeal that could not be held under. He was at all times willing to spend his time, vital force and means in the pursuit of what might possibly turn out to be something of importance to science. Scores of journeys to the ranges and elsewhere were made to verify rumours of wonderful discoveries, most of which ended in smoke, investigation showing that the reports arose in most instances from ignorance or defective observation. However, he was not easily daunted for he said, "You never can tell when something important may turn up." The description of one journey of many will suffice.

Early in 1889, Albert Bruce, Secretary of the Thames School of Mines, had been informed that a miner, while prospecting for coal on the Miranda side of the mainland opposite Pakihi Island, midway between Auckland and the Thames, had come across a bed of fossil-bearing sandstone.

Bruce passed on the information to Park who arranged to visit the place of the reputed discovery in the Easter holidays of that year. Accordingly, on the Thursday before Good Friday, he took passage by the S.S. *Rotomahana* (a small coastal boat owned by the Northern Steam Shipping Company of Auckland) accompanied by his laboratory assistant, E.G. Banks, and a miner, Frank Smith. Banks afterwards became General Manager of the famous Waihi Gold and Silver Mining Company and a mining engineer of repute. Frank Smith was camp assistant and cook.

In his narrative of this journey Park says: "A hired boat containing the camp gear and food was towed at the stern of the steamer. In two hours we arrived at Pakihi Lighthouse, whence we rowed across to the mainland. We pitched our tent and fire-fly in a clump of manuka scrub near the shore and, after a meal, began to examine our surroundings. Banks and I began the search for the fossil-bearing rock by walking westward along the sea-cliffs. We pushed on for a mile or more without success."

"For easier travel we returned along the coastal scrub-covered terrace, keeping fifty or hundred yards from the sea. Pushing our way through the manuka we entered a small clearing in which there stood a scrub shelter, a native maimai. In front of it sat an old Maori woman, a living skeleton, cowering over a tiny fire of manuka sticks, with no covering but a ragged piece of sacking hanging across her shoulders. Near her right hand there was a flax kit containing a few potatoes. When spoken to she made no reply and, for all the notice she took of us, might have been blind as well as deaf. I pushed the sticks of her fire together before leaving."

"Nothing could be done for this tragic soul who doubtless possessed a romantic life history of thrilling youth, wifehood and motherhood. She had been left, as was the custom of the Maoris, to die alone, awaiting the end without complaint and possibly without regret. One wonders what thoughts were passing through her mind in the unending hours of the night. Did she dream of the happy/girlhood days when she splashed in the sunny waters of the Waitemata or of the thrilling poi dances in which she took part? Who can tell?"

"In the dusk of evening we again visited the clearing and again made up the smouldering fire."

"That night there was heavy driving rain and, before day-break, the wind from the north-east had increased to a gale. The violence of the storm and the commotion of the waves breaking along the shore made it impossible to examine the sea-cliffs and the day was spent in camp. In the forenoon we again visited the maimai in the clearing and there, as before, crouched the old woman. Apparently she had not moved during the night. The floor of her shelter was dry, the fire still smouldered, and her potato kit had been replenished by some friends, possibly kinsfolk, in the native village nearby."

"The Maori of the last century was, as proved by countless incidents in his wars with the Europeans, a gallant foe and a hospitable friend (that is, when he was minded to be friendly but, if he were not, you had to look out for trouble) which makes it all the more difficult to understand his callous attitude to the dying and the very old."

"This attitude was evidently founded on the sacred law of tapu common to all the Polynesian race. To touch a corpse or human bones was to be defiled. Even the house or whare in which a native died was tapu and had to be abandoned. Therefore it became the practice to place the dying in a temporary shelter and there let them die."

"The origin of tapu is hedged with religious sanctity and, in some obscure way, may be related to the struggle of the race for preservation against contagious disease and the death that stalks in dark places."

"But I have been wandering from our fossil-hunting quest. The barometer kept dropping ominously and, during a lull in the storm at four in the afternoon, we struck camp and set out for the lighthouse, Banks and Smith pulling, I steering and baling continuously, for there was a high sea running and the boat was shipping sheets of water."

"The bow of the boat had to be kept to the sea and, though the distance to the lighthouse was a short three miles, it took seven hours to reach this haven of rest, standing high on its stilt-like piles. At eleven we pulled under the shelter of the framework, secured the boat and scrambled up the ladder to the keeper's cabin, sodden with salt-water and almost too tired to move. The keeper, an old sailor, was amazed at our foolhardiness but he made us welcome and, being short of food, regaled us royally on rum and bananas."

"Throughout this ordeal Frank Smith, a powerful man with muscles stiffened with hard work, plugged along hour after hour without complaint, but the honours were with Banks. He was at that time but a youth of eighteen, big for his age, and unused to strenuous endeavour, but he stuck to the bow oar with grit and determination."

"At the small lighthouse there was no sleeping accommodation so we made our bed on the floor and slept with great content. The gale did not abate till the eve of Easter Monday. It was thus two days before we were able to intercept the *Rotomahana* on its return to the Thames."

XV. OTAGO UNIVERSITY DAYS (1901 – 1930)

In March, 1901, James Park was appointed Director of the Otago University School of Mines, and Professor of Mining. On the formation of Faculties at the University in 1912, Professor Park, by virtue of his office as Director, became permanent Dean of the Faculty.

During the summer vacations of 1903, 1904, and 1905, he was employed by the Geological Survey in making a detailed geological and mineral survey of the country extending from the Manuherikia Valley to Queenstown, this work being mainly undertaken to give the senior students field experience in geological survey methods and mineral examination. Among the students with him in the field were Dr A.M. Finlayson, who afterwards became a distinguished Mining Geologist; Dr C.A. Cotton, Professor of Geology in Victoria University College, Wellington; Dr R.A. Farquharson, Director of the Geological Survey of British Somaliland; and A. Gordon Macdonald, of the Mines Department, Federated Malay States. The results of his geological surveys in Central and Western Otago are contained in Bulletins 2, 5 and 7 (New Series) NZ Geological Survey[4].

Figure 12. Field camp while mapping the Cromwell subdivision, 1904. Note the flag on the right – part of an official government camp.
GNS Science. Photographer: J. Park

[4] Although Park carried out his work in central Otago efficiently, there was ongoing acrimony with the new Director of the Geological Survey, Dr J.M. Bell, who was considerably younger than Park. The events surrounding this controversy are described in an article, "James Park and the geological bulletins of Otago" by Simon Nathan (*GSNZ Journal of the Historical Studies Group 54*: 34-48, 2016).

Figure 13. Professor Park examines exposures of foliated schist on the road from Queenstown to Five Mile Creek
GNS Science, James Park collection

Figure 14: Staff and students of the Otago School of Mines in 1905 outside the 'Old Tin Shed' . J.A. Bartrum and C.A. Cotton were later to become distinguished geology professors at Auckland and Wellington.
Hocken Collections, University of Otago, S16-524a

Figure 15. Opening of the new School of Mines building in 1909 – a triumph for Park in his first decade at Otago University.

Hocken Collections, University of Otago, S16-524d

In October, 1914, Professor Park volunteered for active service with the New Zealand Engineers but his application was turned down by the Minister for Defence owing to his being in years far beyond the military age. To compensate him for the enforced idleness he was given the training of a band of volunteers for service in the handling and use of explosives, in surveying and military engineering. His three sons had volunteered in the ranks – James Douglas, afterwards Sergeant-Major in the Mounted Rifles; Frank Leslie, afterwards Sergeant-Major in the Field Engineers; and Keith Rodney, M.C., D.A.C., A.D.C., Air-Commodore in the Royal Air Force.

In 1915, Professor Park offered to carry out, without remuneration and as a war-work contribution to science, the geological survey of some area for the Geological Survey. Percy Gates Morgan, the Director, willingly accepted the offer and suggested the survey of a West Coast area, or of the Oamaru District. Park elected to survey Oamaru District where he had some years previously carried out some work, besides being nearer his home town. He devoted the whole of the summer of 1915-16 to the detailed survey of this area, the results of which are contained in Bulletin No. 20 (New Series), NZ Geological Survey.

Concerning the Oamaru work, which was carried out single-handed, Morgan wrote: "Professor Park's report must be regarded as a very important contribution to the geological literature of New Zealand. In it special attention has been paid to the Palaeontology of the various stages of the Oamaruian System."

Park also confirmed his previous (1904) discovery of a sheet of pillow-lava on the coast near Oamaru, which has since been described by Boehm, Heim and other European geologists, as the finest known example of pillow-lava structure in existence. His was the first discovery of pillow-lava in New Zealand.

In the summer of 1921, Professor Park carried out for the NZ Mines Department a geological and mineral survey of Western Southland, the results of which are embodied in Bulletin 23 (New Series). "This survey", writes the Director of the Geological Survey, "was undertaken in accordance with an arrangement between the Mines Department, the University of Otago and Professor Park, whereby the services of the latter were given gratuitously and field expenses were paid by the Mines Department."

Figure 16. Staff and students of the Otago School of Mines in 1919, immediately after World War 1.Students L.I. Grange, E.O. Macpherson and H.E. Fyfe later had distinguished careers with the New Zealand Geological Survey.
Hocken Collections, University of Otago, S16-524c

Figure 17. Hamming it up for the camera - Professor W.N. Benson feigns despair as Professor Park prepares to go on sabbatical in 1928, leaving him in charge of the School of Mines.
Hocken Collections, University of Otago, S16-033a

Figure 18. Staff and students of the Otago School of Mines in 1931 – Park's last year as Director. Geologists F.J. Turner and W.N. Benson are on the left end of the front row. Student J.B. Mackie (2nd row) was subsequently to lead the Department of Surveying for many years, the only part of the School of Mines that remains in Dunedin.

James Park's lost fossil localities

After working closely with Alexander McKay, Park was always conscious of the importance of fossils. In addition to his work on economic geology, he wrote several paleontological papers. Two important fossil localities he noted have never been re-located, and have intrigued later investigators:

Landis CA, Campbell JD 1979: Park's lost fossil locality. *Geological Society of New Zealand Newsletter 48*: 14-15.
[The locality is in the Livingstone Range, and apparently contained Permian fossils]

Campbell HJ, Francis DA 1989: Did James Park know his Monotis? *Geological Society of New Zealand Newsletter 83*: 27-28
[A *Monotis* locality at the northern end of the Waewaepa Range]

XVI. PLEISTOCENE GLACIATION IN NEW ZEALAND

A Historic Discussion

In the course of his geological survey of the region lying between the Alexandra Basin and Lake Wakatipu, Professor Park devoted much time to the collecting of data relating to the extension of the glaciers in the Pleistocene period of refrigeration, that is in the period immediately preceding the time in which we now live. His observations, which are recorded in Bulletin Nos. 3, 5, and 7 (New Series) published by the Geological Survey, attracted wide attention among the geologists in Europe and America, who now recognised that the glaciation of this far-away land in the South Pacific had occurred on a grander scale than hitherto suspected.

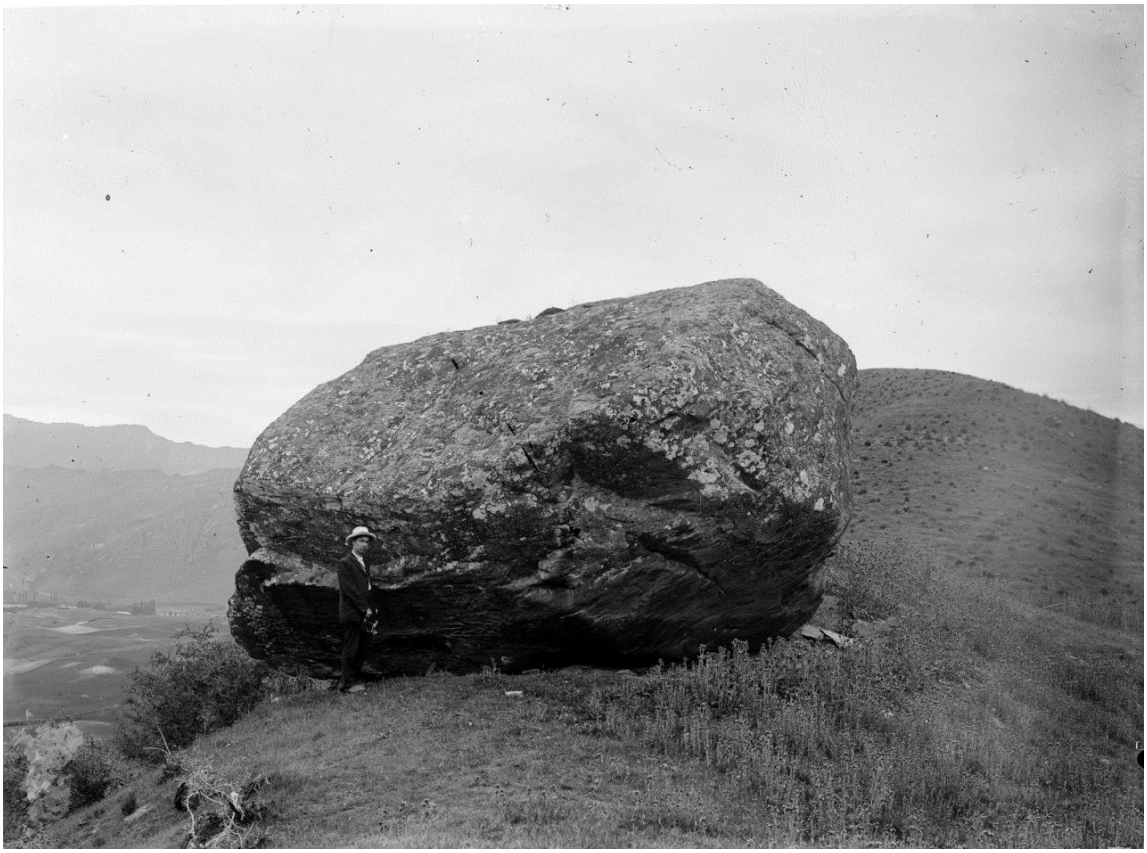

Figure 19. Perched glacial erratic of greywacke near Hogan's Road, Arrow Flat. *GNS Science*. Photographer, J. Park

In 1909, Professor Park lectured before the Otago Institute on the "Pleistocene Glaciation of New Zealand", and this brought about a long and animated discussion, that was fully reported in the daily press, and followed by the general public with keen interest and appreciation. As protagonist of the view that the glaciers at one time descended to the coasts, my husband was opposed by Dr P. Marshall. The botanical aspect of the question was argued by Mr G.M. Thomson, and the zoological by Professor Benham.

A well-known contemporary with a strong bent for natural science followed the discussion from beginning to end and has left his impressions in an interesting letter that is illuminated with shrewd comment. He writes:-

> "The discussion dominated the meetings of the Institute for months and became the everyday talk of the town, this arising from the conspicuous ability displayed in the presentation of the matter and the keenness of the speakers which, in a few instances, led to the display of a jangling attitude that stuck a discordant note in a sober assemblage of scientists. Nevertheless it was all very stimulating and enjoyable."
>
> "Thomson, a smatterer in many sciences but master of none, carrying too many fish in his basket, was soon out of his depth."
>
> "Benham, an able master of Natural History, inclined to be dominated by wilful nerves, made a most useful contribution to the discussion. With a heavy bench against him Park presented his facts and views clearly and calmly and, what was more to the point, convincingly. When listening to him or watching his face when Marshall had the floor, I had a shrewd notion that he was really enjoying himself. Marshall did not seem at complete ease at any time during the discussion, which I set down to his lack of personal knowledge of the accepted criteria of ancient glaciation as found in Europe and America. In this regard Park held him at a serious disadvantage."

This correspondent, who possesses a well-disciplined judicial mind and the faculty of summarising facts, presents the essence of Professor Park's argument in the following words:-

> "In the early Pleistocene, that is the period immediately preceding the time in which we now live, there took place through-out the whole world a rapid and overwhelming advance of the polar ice-sheets and of the glaciers from their sheltered retreats among the alpine chains. Many theories to explain this advance have been put forward by astronomers, physicists, and geologists, and all are vague and hypothetical. But geologists are more concerned with the advance itself than with the possible cause or causes that brought it about."
>
> "In New Zealand, as elsewhere, at the period of greatest advance, the valley glaciers of the alpine ranges descended towards the coasts and, in some places, by overflowing their mountain walls, they came together in this way forming ice-sheets with wide advancing fronts."
>
> "In the southern parts of the North Island there was glaciation, but not on so grand a scale as in the South Island where the great alpine chain with its stupendous flanking ranges formed ideal grounds for the gathering of glacier-ice. At the period of maximum advance there is clear evidence that the glaciers reached the sea on both coasts, always keeping in mind the fact that at this period the Canterbury Plains, which now form an enveloping fluviatile apron fringing the outer ranges, did not then exist. They were later formed by the piling up of the sands and gravels borne seaward by the rivers draining the Canterbury glaciers; that was during the pluvial period attending the final great retreat of the ice."
>
> "The great Wakatipu glacier, as shown by Park, attained a thickness of 5000 or 6000 feet and where it abutted against the face of the Remarkables split into two branches, one branch descending to Kingston and Athol, the other flowing into the Lower Shotover basin whence it advanced down the Kawarau Gorge to the Cromwell basin, and from there to the Alexandra Basin and beyond. Park discovered the vast terminal

moraine at Clyde where the Kawarau glacier maintained itself for a long period in the deep recesses of the Dunstan Gorge. He showed that the ice-face at Clyde made one or two spasmodic, though feeble, advances towards Alexandra but the final retreat of the ice front from Clyde could not be stayed. When it eventually set in the recession was rapid and it did not cease till the shelter of the Kawarau Gorge was reached. But there the delay was short, for the gathering snows could not long contend with the ever increasing climatic warmth."

"Then began the final grand retreat broken by despairing rear-guard stands at Victoria Bridge, at Arrowtown Basin and Queenstown. The struggle between the retreating ice and the increasing solar warmth was as grim and determined as any event in the geological history of New Zealand."

"The Kingston glacier on the right-flank had already given up the unequal contest, but not till it had piled up the gigantic Kingston moraine behind which it sheltered for a time. This moraine blocked up the natural outlet of the Wakatipu basin, which was diverted to the existing Frankton outlet.'

"The Kawarau glacier on the left, with the assistance of the small but well-entrenched Shotover and Arrow glaciers, kept up the struggle for a time but at last, screened by the Queenstown Domain moraine, it gave up the struggle. The Mount Nicholas, Routeburn, and Rockburn moraines are an evidence that the retreat was now becoming slower as the alpine recesses were approached."

"The Clutha glacier retreated rapidly from the Cromwell Basin and made no stand of moment till it reached Pembroke where it formed the wide moraine lying bertween Lake Wanaka and Lake Hawea."

"The history of the Wakatipu glacier and its branches is the history of the Waitaki glacier and of the glaciers that pushed their snouts through the coastal ranges till they overlooked the area now occupied by the Canterbury Plains. They made a stand in the Mackenzie Basin, spreading morainic material far and wide. But it was not long before they also began the final retreat to the fastnesses of the alpine chain where the Tasman and other glaciers are but the shrunken remnants of the former gigantic Pleistocene glaciers."

"Professor Park certainly proved up to the hilt that there was a grand advance of the glaciers during the Pleistocene ice-age with minor halts and recessions of short duration; and that after the period of maximum refrigeration there began a general retreat with halts and minor, but temporary, advances. He demonstrated by a splendid array of new evidence, mainly derived from the Wakatipu Basin and from Central Otago, that the Pleistocene glaciation attained a magnitude hitherto unsuspected by geologists. For his outstanding work on New Zealand glaciology his name will always be held in high regard."

"Marshall's contention that moraines and striated rocks are the only criteria of ancient glaciation is altogether erroneous. Exploration in Northern Europe, Spitzbergen, Greenland, Alaska and the Antarctic has shown that, in the more intensely glaciated areas, morainic matter, till and grooved rocks are uncommon and this for obvious cause. In a region almost completely enveloped with ice the amount of exposed land –

> the potential gathering ground of detrital matter – must be relatively small. On the other hand ice-glaciers enclosed by rocky mountain-walls usually carry a heavy burden of detrital matter that, at the halting places during the general retreat, left behind as terminal and lateral moraines."

It would appear from his papers, read during the glaciation discussion, that Marshall was ignorant of the great fluvio-glacial drifts of North America. I also gathered from the general tone of his remarks that he pictured all glacial deposits in terms of tumbled moraines with striated stones.

The reports on the paucity of ancient glacial evidences in the Arctic and Antarctic regions are confirmed by the observations of Alfred H. Brooks of the United States Geological Survey. In his report on *The Mount McKinley Region, Alaska* (Professional Paper 70, p. 127, 1911) he says:-

> "Direct evidences of glaciation are relatively rare in this province. For a region, so much of which has been covered by ice within recent time, there is a remarkable absence of glacial grooving and moraines, till, and other typical glacial features. The upper limit of the valley glaciers is usually marked by irregular gravel terraces, and the former distribution of ice has been largely determined by these features …… It appears probable that only in the larger valleys was the ice thick enough to exert the pressure necessary for deep rock grooving; …… The lesser ice scorings are not likely to have been preserved because they lay in the zone of the rapid rock disintegration."

This correspondent concludes with the comment:-

> "One more remark and I have done. It will have been noted that Marshall, when discussing the glacial origin of the Taieri moraine, mentioned that he had asked a visiting European geologist to go with him to examine the moraine. This geologist, so Marshall alleged, had told him verbally that, from what he had seen, he did not think the deposit of glacial origin. Now the point is this. What was this geologist shown? Professor Park was evidently not asked to accompany this visiting geologist, nor was he represented by an agent or, shall we say, by Council. Clearly Marshall's procedure was alien to all the elementary tenets of British justice and judicial practice; and, though passed over without comment by Park, was deprecated by all fair-minded listeners."

Marshall or Park – who was right?

Fuelled by the evidence of widespread glaciation he had seen while mapping in central Otago, Park developed his theory of an enormous ice sheet that covered the whole of New Zealand. Marshall argued that glaciation was more localised, and that much of New Zealand, especially the North Island, was never covered by ice.

Park's ideas gained little acceptance once it was realised that some of his so-called glacial deposits were misidentified – for example, he included the widespread lahar deposits in the central North Island. Leslie Adkin, a young amateur geologist showed that only the highest peaks in the Tararua Range had been affected by glacial action, casting doubt on the existence of widespread glaciation in the North Island. Ironically Adkin named the valley where he identified evidence of glaciation Park Valley to honour James Park.

XVII. TRAVELS ABROAD (1910 – 1929)

After joining the University of Otago, Professor Park travelled widely in Western Australia, notably in the goldfield areas at Kalgoorlie, Coolgardie, Never Never land, Southern Cross, and Bullfinch. The latter he visited when the *rush* was at its height in 1911 and he describes the frenzied excitement of the miners as an interesting study of the psychology of human nature under the stress of an acute attack of gold-fever.

He also visited the celebrated tin mines at Mount Bischoff, near Waratah, Tasmania, and some of the neighbouring mines, his object being the acquiring of first-hand knowledge of tin lodes and their mode of occurrence. In 1911-12 he spent four months in travel in Germany, France, Italy and Belgium, visiting many universities and places of geological interest.

In the war years, 1916 and 1917, he carried his observations to New Caledonia where he examined and reported on some nickel and chrome mines. In 1916 he examined the phosphate deposits at the Isle of Pines, Cocos Island and other islands in the Pacific. In 1916, and again in 1917, he visited the north of Queensland reaching as far as Cape York and the Mitchell River which flows into the gulf of Carpentaria. The wolfram, bismuth, molybdenite, copper, and tin ore-bodies at Wolfram Camp, Chillagoe, Kitchenor, and Herberton were examined and reported on. In 1916, a special visit was made to the molybdenite mines in the New England district of New South Wales.

During his summer vacations the opportunity was taken to examine the more important gold mines at Ballarat, Bendigo and elsewhere in Victoria.

With the privilege of special leave of absence granted by the University Council, Professor Park, on several occasions, extended his excursions beyond Australia. In 1912-13, he travelled through Germany where he spent three months visiting the principal Universities and exchanging views with the leaders in geology, mining and applied science. At this time he travelled widely in Switzerland, Italy, Belgium, France, England and Scotland. In France, in 1912, he examined the coal-mining areas in Flanders.

In the summer of 1922-23, accompanied by his wife, he travelled to Canada with the special object of examining the celebrated nickel mines at Sudbury, Ontario. He also visited England, Scotland, Wales, Belgium, Spain, the French and Italian Rivieras, accompanied by his wife and his youngest son, Wing-Commander Keith R. Park, R.A.F., and his wife, altogether a party of four.

Again, in the summer of 1928-29, Professor Park and his wife visited England and, on the return journey, spent two months travelling throughout Cape Colony, Transvaal, Natal and Orange Free State. He was greatly interested in the famous gold-mines at and near Johannesburg, and the Premier diamond mine 30 miles from Pretoria.

The examining of mineral deposits, and of mining methods as pursued in different parts of the globe, proved of significant value not only to the Professor himself but also to his students. He always maintained, as shown by his reports to the University Council, that the mere reading of descriptions of mines and mineral deposits can never possess the same value as actual observation.

XVIII. OUTSIDE ACTIVITIES

Endowed by Nature with a superabundance of mental and physical vigour, it is perhaps not surprising that Professor Park, from his earliest days, devoted much of his leisure to outside activities. It has been already mentioned that in 1882 he took the first steps to initiate the Nelson Philosophical Society, now known as the Nelson Institute. Till 1885, he was the senior member of the Council, and one of the most active members of the Society.

In 1883, Park originated the Nelson Alpine Club of which he was elected Chairman. On the different mountaineering excursions undertaken by the Members of the Club he was chosen leader and, by all, referred to as "Captain". He has left a note to say that all the expeditions undertaken under his guidance in the Nelson days, and in his travels in later years among the Southern Alps and elsewhere, were free from serious mishap, "free from loss of life or limb", and of this he was inordinately proud. This freedom was, one must admit, a tribute to the completeness of his arrangements and skill in bushcraft and mountaineering.

When residing at the Thames he took a keen interest in bowling, football and cricket. He played with the First XI of the Thames Cricket Club and in 1894 won his "blue". In 1900, when leaving to take up his appointment at Otago University, he was elected an Honorary Life Member of the Thames Football Club.

At Dunedin he continued to take an interest in Rugby football. For fourteen years in succession he was elected President of the Otago University Rugby Football Club and, for some years, represented that body on the Otago Rugby Union.

On account of advancing years he retired from the post of President of the University Football Club and, by unanimous vote at the Annual Meeting in 1923, was elected an Honorary Life Member of the Club, a distinction which he greatly valued.

Professor Park has served as President and Vice-President of the Otago Institute of which he was, for many years, a member of the Council till he voluntarily retired.

For many years he was one of the two representatives of the Otago Institute on the Board of Governors of the New Zealand Institute.

In the years preceding the Great War, he was a member of the Managing Committee of the Dunedin Athenaeum of which he was successively Chairman and Vice-Chairman.

At Otago University he was President of the Mining Students' Association, and later of the Mining and Science Association, and in many of their meetings he took an active part.

In his goldfield days Professor Park was President and Vice-President of the New Zealand Society of Mining Engineers, in the formation of which he was one of the prime movers. At the same time he was a Corresponding Member of the Council of the Institution of Mining and Metallurgy, London, and of the Australian Society of Mining Engineers.

At the Mining Congress held in Dunedin in February, 1926, Professor Park was elected President and, besides contributing a paper on "The Present Position of the World's Oil-Shale Industry", acted as Chairman at most of the important sittings of the Congress, which lasted

four days. Among the apologies for absence was a cablegram from Sir Thomas Holland, F.R.S., President of the Institution of Mining and Metallurgy, and Principal of the Imperial College of Science and Technology, London, in which he says:-

> "Warmest greetings to Conference. Congratulate it on choice of President. Professor Park commands the affectionate respect of British Mining profession."

In 1912, the Minister of Mines appointed Professor Park Chairman of a Commission of Enquiry into the working of the Kaitangata Colliery concerning the condition of which there were, at that time, some misgivings in the public mind.

In 1888, Park was elected a Fellow of the Geological Society of London, his sponsors being Sir Archibald Geikie, Sir James Hector and Hon. W.D. Mantell. In 1910, he was selected as an Honorary Member of the Geological Society of Berlin, the only New Zealand geologist to whom this honour has come. But what he regarded as the greatest honour of all came from Vienna. On the death of Haast, Professor Eduard Suess, the Nestor of modern Geology, appointed him his Honorary Correspondent for New Zealand, a position he held till the death of Suess in 1911. His correspondence with Suess on the genesis of the New Zealand alpine chain, and its relationship to the great arc of which the Dominion forms a part, is interesting and important as showing the infinite pains of this great geologist to master the structure of the most distant lands in his endeavour to collate the evidence into generalisations of world-wide application.

For many years Professor Park was a member of the Institution of Mining and Metallurgy, London; and for several years a Corresponding Member of the Council of that distinguished body. In February, 1930, he was by the unanimous vote of the Council elected an Honorary Member of the Institution, one of the select few to whom this high honour has been conferred. This is the highest award the Council has at its disposal.

Charles McDermid, the Secretary, conveyed the gratifying news in the following felicitous terms:-

> "My Dear Professor Park,
>
> I have much pleasure in confirming my cablegram informing you that by the unanimous vote of my Council at their Meeting on February 27th, you were elected an Honorary Member of the Institution as a mark of the high esteem in which you are held, and in recognition of your distinguished services to mining and metallurgical education and practice.
>
> I send you under separate cover the Certificate of Honorary Membership which I trust will reach you in due course.
>
> I was desired by the Council to convey to you their cordial greetings and with kindest personal regards."

The Council of the University of Otago warmly congratulated Professor Park on his honour as also did his friends far and wide.

According to the terms of his appointment, Professor Park was given the right of private practice and, in the pursuit of his calling as Consulting Engineer and Mining Geologist, he examined and reported on, for the New Zealand Government and for English and foreign Mining Syndicates, coal areas, potential oil-fields and ore-deposits in many lands. During the war period he was commissioned by the Allies to report on nickel and chrome mines in New Caledonia and on wolfram and molybdenite mines in New South Wales and the far north of Queensland. His travels took him into the most remote mining regions in four continents; and by all great reliance was placed on the soundness of his judgement.

On the approach of the 50th Anniversary of the founding of Canterbury University College, the Governing Body of the Imperial College of Science and Technology of London University requested Professor Park to act as its representative at the celebrations to be held in Christchurch in May, 1923. In a letter dated 26th February of that year the Secretary of the Imperial College of Science wrote:-

> "The Governing body of this College will be grateful if, as a distinguished Old Student, you will undertake the duty of representing them and the College at the approaching celebrations, in May next. I am sending you, under separate cover, the congratulatory message inscribed in parchment under the College Seal for presentation to the Authorities of Canterbury College."

Professor Park was justly proud of this mark of esteem and confidence and duly presented the congratulatory message.

XIX. AS AUTHOR AND TEXT-BOOK WRITER

For a period of fifty years, apart from his official geological reports and bulletins published for presentation to Parliament, Professor Park was a frequent contributor to New Zealand, Australian, English, German, and American scientific societies, his papers dealing with general geology, economic geology, mountaineering and travel. A complete list of his reports and papers up to 1910 appears in the Bibliography of NZ Geological Literature in his book on "The Geology of New Zealand", pp. 450-454, 1910. The number is 113. Since 1910, he has published another 37 papers, making in all 140.

As a writer of textbooks, he achieved a deserved reputation. His books are known in every English-speaking community, being used in many Universities and Engineering Schools. Altogether his books have passed through thirty-two editions, and the sales amount to over 70,000 copies. All of his books have passed through two or more editions, the publishers of most of his works being the world-famed firm Charles Griffin & Co. Ltd in Drury Lane, London.

His first venture was a slim volume on the *Cyanide Process of Gold Extraction*, 1894, which passed through eleven editions. This book was the first to be published on this difficult chemical process – a process that completely revolutionised the gold-mining industry, ensuring higher extractions from all kinds of gold-bearing ores, besides enabling low-grade ores, formerly unpayable, to be worked at a profit. Professor Park's book was translated into German and published simultaneously in Leipzig and Vienna in the year 1902.

During the war period, especially from 1916 to 1918, and for two years after the declaration of peace, there was unprecedented activity in the book publishing trade. In some way that is not easy to explain the war acted as a powerful stimulant in the reading and study of standard works, most of them of a serious kind. It may be that the reading of books was sought after by the soldiers in billets as an effort to regain a measure of mental balance and poise after the stress and racket of the front trenches.

Whatever the explanation, publishers were kept busy issuing fresh editions to meet the abnormal demand. In common with other authors, as provided by copyright agreement, Professor Park was required by his London publishers to prepare the manuscript for three of his works, the stocks of which had become exhausted. In this way he prepared the 3rd Edition (1915) of his "Theodolite Surveying and Levelling", the 4th Edition (1917) of his "Mining Geology", and the 5th Edition (1917) of his "Practical Assaying".

It may be said that he undertook this work with great reluctance for there was not only the mental disturbance arising from the war, and the ever-present anxiety for his three soldier sons, but at this time he was overburdened with work for, besides his own duties at the University, he was also carrying on those of Professor D.B. Waters, the chief member of his staff who was on active service. The preparation of the manuscripts occupied most of his time in the summer vacations of 1916 and 1917.

Professor Park's books met with much praise from reviews in England and America, especially for his clearness of expression, crisp style, and sound knowledge of his subject. Frequently it was stated that he possessed the rare faculty of making difficult things seem easy. Few authors have met with the success he achieved.

The fifth edition of his *Textbook of Mining Geology* was translated into German and published in Leipzig in 1928.

His textbooks published by Griffin & Co. are:-

> "The Cyanide Process of Gold Extraction", six English, three NZ and two German editions.
>
> "Textbook of Mining Geology", five English and one German edition.
>
> "Textbook of Theodolite Surveying and Levelling", six English editions.
>
> "Assaying and Practical Chemistry", two English and three NZ editions.
>
> "Textbook of Practical Hydraulics", two English editions.
>
> "Textbook of General Geology", three English editions.

His *Geology of New Zealand*, now out of print, was published in New Zealand by Whitcombe and Tombs, Christchurch. In a note concerning the publication of this book, Park writes, "In April 1909, the Hon. James McGowan, Minister of Mines, informed me that when an offer by P. Marshall, lecturer in Geology in the Otago School of Mines, to write a book on the geology of the Dominion for the Education Department came before Cabinet it was decided that the option of writing this book should be given to me. After considering the matter I replied that I did not care to undertake the work for two reasons. In the first place, Marshall, I found, was very keen to get the job and I could see that if I carried it out he would be a greatly disappointed man; and in the second place I had some time previously arranged with the Chairman of Directors of Whitcombe & Tombs to publish a book on the Geology of New Zealand, most of the manuscript for which was already in the hands of the printer. My book was published in Christchurch in July 1910, Marshall's in Wellington, in 1912."

Figure 20. A selection of textbooks by James Park held in the GNS library.
Photo: S. Nathan

Apart from letters, the works that have been laid under contribution in the preparation of this sketch of the *Life and Times of Professor James Park* are the following:

Reports of Geological Explorations, 1878 to 1885 and 1885 to 1889.

Park, "The Ascent of Mount Franklin"
Trans. NZ Inst. Vol. XVII, pp. 350-356, 1885.

McKay, "On the Identity of the Moa-Hunters with the Present Maori Race"
Trans NZ Institute, Vol. VII, pp. 98-105.

Park, "An Ascent of Ruapehu"
Trans. NZ Inst. Vol. XIX, pp. 327-331, 1887.

Bulletins 2, 5, 7, 20, 23 (New Series) NZ Geological Survey.

Elder, "Pioneers of New Zealand Goldfields"

Elder, "Goldseekers and Bush Rangers in New Zealand"

Park, "Pioneer Days – The Life and Times of John Chapman Andrew"
"Otago Daily Times", 1924.

Park, "Maori and Early European Exploration"
Otago Daily Times, July 12, 1922.

Park, "Exploring in North-West Otago"
Otago Witness, August 2, 1922.

Park, "Early Exploration in the King Country"
Otago Witness, September 5, 1922.

Early Exploration in Western Otago
Otago University Review 35 No. 2 (0 1922)

XX. RETIREMENT

On September 16th, 1931, the Professor informed the Chancellor of his intention to retire in March of the following year. Though he had not missed a single lecture in a period of thirty years, either through sickness or other cause, he considered that at age of 75 he was entitled to a period of quietude and mental repose in his declining years.

In March, 1932, he surrendered the keys of office as Director and Dean of the Faculty of Mining to his successor, Arthur Robert Andrew, D.Sc., F.G.S., an old pupil of his own and a graduate of the University of New Zealand and an Associate of the Otago University School of Mines.

At a special meeting of the University Council, held in March, the Professor was entertained at a farewell function at which he was presented with a beautifully engraved scroll setting out in happy terms a warm appreciation of his devotion to the work that devolved on him, and an acknowledgement of the high standard he maintained in all the courses prescribed for the degrees in Mining Engineering and Mining Geology. He was also congratulated on the responsible positions held in all parts of the mining world by the graduates trained under him.

The scroll was signed by the Chancellor, Vice-Chancellor and all the members of the Council. At the following general meeting of the Council the Professor was appointed Emeritus Professor, an honour which gave him great pleasure.

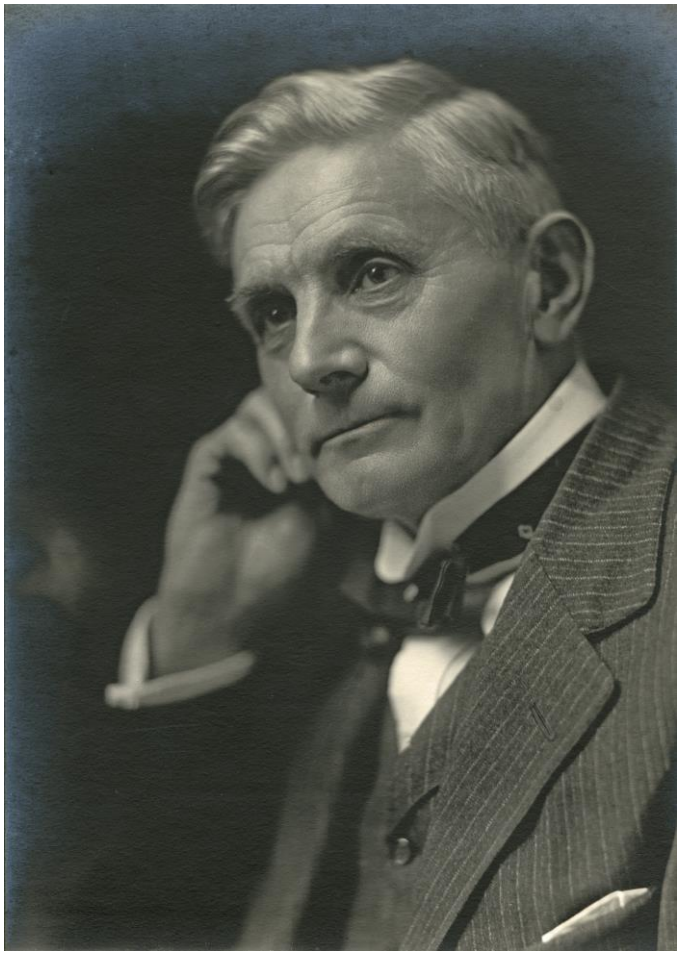

Figure 21, Studio portrait of James Park, probably taken in the late 1920s.. *Hocken Collections, University of Otago*, s16-033b

MEMORIES OF JAMES PARK

(compiled by Simon Nathan)

James Park died over seventy years ago, so there is no-one left with personal memories. It is fitting to end with some recollections by former students and colleagues that show that he was remembered fondly.

Jack Mackie was a student in 1931, Park's last year in charge of the School of Mines (see Fig 18). He recalled[5]:

> "The faculty was a very small one of about 25 students led by a distinguished Dean, Professor James Park Hon MIMM, FGS. Jimmy Park, as he was known to his students was a dignified but very genial man of 72 years. He was a successful, assured mining engineer and geologist and a fine role model for us. Jimmy smoked expensive Havana cheroots which he occasionally handed out to us at the end of a lecture with an invitation to join him in a dish of tea at the university canteen. The sight of mining students walking in the quad afterwards and smoking these cigars always raised a few eyebrows".
>
> Jimmy sometimes invited us to his home, Elphinstone, in Anderson's Bay to sample his no less expensive Scotch whisky. Perhaps with all this generosity he was educating us towards life as successful mining men. 'All our men do well' was one of his favourite remarks – and most of them did".

After graduating in mining and geology, Jack Mackie headed the Department of Surveying at Otago University for many years, and was responsible for the erecting this plaque:

Figure 22. This rather tarnished plaque outside the Department of Surveying, recalls Park's contribution to the surveying profession. The final sentence reads: "It was Professor Park, a noted mining engineer, geologist and surveyor who laid the foundations for the teaching of surveying at this university"

[5] 'Captain Jack: the autobiography of Jack Mackie'. NZ Institute of Surveyors, 2007.

George Moir gave an account of Park's mountaineering career, to which the interested reader if referred for detailed information[6]. Moir summed up his memories of Park:

> "In conversation he had a sense of humour coupled with optimism in the face of difficulties derived from long experience when he had to overcome them. Although the present writer did not sit in Park's classes, he got to know him in other ways. The Professor had a kindly attitude to his students and did not expect classroom perfection. He seemed to realise that what a man did not learn in the classroom he would have to bestir himself to learn from practical men doing the tough work around the mines. He loved to entertain his students and those of other faculties he met, e.g. during 14 years when president of the OU Football Club."

Frank Turner recalled two people who influenced him when he arrived at Otago aged 21[7]. He found W.N. Benson, Professor of Geology inspiring, and was thinking of assisting him with geological work around Dunedin.

> "The other man was Park who was a completely different character, a great extrovert, man of the world. He used to fill me up with whisky and then suggest other things. I remember him saying to me, "Oh you are going to research with Benson – a good idea, a very good idea. I hear you are going to do some work in the Dunedin district – that's a very interesting place. By the way, how do you feel about working in pig-stys and people's backyards? Well have another whisky." All this was interlarded with tales of experiences in mining fields and over on the West Coast, and then he finally said, "Wouldn't you like to go over to the West Coast and go over Park's Saddle, it hasn't been climbed since I went over in 1870 some time. I thought that this was just fine, the whisky began to work on me, so I decided that we would do that".

There is little record of Park's final years after he retired. He was living in Hampden, near Oamaru when visited about 1938 by Dave Brown who was then mapping the Moeraki subdivision. "Park led Dave to the bottom of the garden, where from a hiding place in a hole in a hedge, he produced his precious bottle of whisky – his favourite way of offering hospitality to a fellow geologist – obviously to the disapproval of his good wife"[8]. During that visit, Dave Brown took this last photograph of James Park.

Figure 23: James Park at Hampden Beach, about 1938
Photo: D.A. Brown

[6] James Park: memoir of an early mountaineer. *New Zealand Alpine Journal 24* (1971), pp 159-63.
[7] Of rivers, horses and isograds. *Geological Society of New Zealand Newsletter 63* (1989) , pp 56-57.
[8] *Historical Studies Group newsletter 3* (1991)

James Park died in Oamaru on 28 July 1946. In a detailed obituary in the *Transactions and Proceedings of the Royal Society of New Zealand*[9], Professor Gordon Williams recalled:

> "His retentive memory, his sense of humour, and his never failing optimism made him a delightful conversationalist and an agreeable companion. He loved to entertain his students (and this I might say he did on a most lavish scale) and recount to them the stories of his exploring days: he kept young by his associations with the younger generation".

Park's will was simple. Apart from a single bequest of his gold presentation watch to his son, Keith Park, he left everything to his wife, Jane Park. He had only a modest estate, valued for probate at £350/15/10 (in 2017 values, $NZ 28,500). It is possible that he had already transferred assets to his wife to avoid death duties.

Jane Park died in Oamaru on the 27th December 1949. Her estate was valued for probate at £7553/11/4 (in 2017 values $NZ 524,000). Apart from several small legacies, the residue of her estate was left to Otago University to augment the James Park prize in economic geology that she had established in 1948. Seventy years later the fund has grown so that there is both a prize and scholarship awarded in memory of James Park.

[9] *TPRSNZ 79* (1951), pp 148-151