

RICHARD DAINTREE

First Government Geologist of Northern Queensland

by ANN MOZLEY, B.A.

Basser Library, Australian Academy of Science, Canberra.

Nineteenth century science owed much to the clergy and in Australia, as in England, geology commanded their special attention. In Queensland it may be said that the Geological Survey owed its origin to two Protestant clerics, the Rev. George Wight, Congregational Minister at Eildon Hall, Queensland, and the Rev. William Branwhite Clarke, rector of the parish of Saint Leonards, New South Wales.

J. T. Woods has recorded¹ the Rev. George Wight's contribution in acquainting the newly-formed Philosophical Society of Queensland of the need for a government geologist in the Colony in May 1867. Aware of the potential wealth of Queensland and familiar with the workings of the Geological Survey of England and its efficient counterpart in Victoria, Wight had urged that the appointment of a thoroughly practical geologist in Queensland was "the best, cheapest, and speediest means of guiding and aiding the development of the vast resources of Queensland."

The Rev. W. B. Clarke's influence was of a more conclusive kind. Clarke was a geologist by training as well as by inclination. He had studied geology at Cambridge under Professor Adam Sedgwick and, emigrating to N.S.W. in search of health and church preferment in 1839, had carried out geological work in widely scattered parts of that Colony before being appointed geological surveyor by its government in 1851 to report on the southern and northern goldfields of N.S.W. Two years later his survey brought him to southern Queensland and, from his large experience of auriferous regions, he confidently predicted that gold would be found along the flanks of Queensland's Great Dividing Range from the Upper Burdekin to Moreton Bay; predictions that earned him the reputation of geological seer and prophet in his own country when the discoveries at Canoona and the Cape River became known.

The publication, therefore, early in September 1867 of an address by Clarke to the Royal Society of N.S.W. enumerating the auriferous regions of Queensland² moved the scientifically-minded member for Maryborough, W. H. Walsh, to revive the motion for a geological survey of the Colony (which had been rejected the previous session) when Parliament met on 9th January 1868. "From their knowledge of the Rev. W. B. Clarke," Walsh reminded his colleagues, "if he was instigated to write in that expectant strain, honourable members might feel sure that his prognostications would prove true of Queensland"³ Walsh had fortified his case with a letter from the eminent geologist which he read in Parliament. In it Clarke pressed vigorously for a geological survey. It had often struck him as an extraordinary circumstance, he confessed, that Queensland should have been left without any regular inspection of its mineral wealth and that the Colony "should have, as it were, slept over the revelations that have occasionally taken place". He advised a geological survey dividing the Colony into north and south and manned by two field geologists with some knowledge of mineralogy, and he urged that the Government should adopt a liberal policy in making its appointments, and not fetter the surveyors with directions.

His positive testimony swayed the legislature and the motion for a geological survey was carried unanimously. For the first appointment in the north of Queensland, Clarke recommended the services of Richard Daintree, formerly of the Victorian Geological Survey. A month later, at the Colonial Secretary's explicit request, he nominated C. D'Oyly Aplin as the first Government Geologist for Southern Queensland.

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Richard Daintree, like Clarke, had received some education at Cambridge. Born near Huntington, England, on 13 December 1831, the son of a prosperous farmer who bore the same name, he had been educated at Bedford Grammar School and went up to Christ's College in October, 1851. Delicate health, however, truncated his studies and obliged him to leave England late in 1852 in search of health, and he hoped undoubtedly, gold, in the Australian Colonies. Daintree, at 21, spent his first adventurous year in Australia prospecting on the Victorian goldfields. No doubt he found little of the precious metal for in February 1854 he joined the staff of the Victorian Geological Survey, founded under A. R. C. Selwyn in 1852, as an assistant geological surveyor. Two years later he was back in London where he added to his scientific training with a year's study of chemistry and assaying at the Royal School of Mines and where he developed that interest and expertise in photography that was to mark him as a pioneer of photography in the cause of science and to serve him as a powerful tool on his Colony's behalf when he became her Agent-General in London in 1871.

Daintree returned to Victoria towards the end of 1857, and on 1st December, married Agnes Lettice Foot in Melbourne. Soon afterwards he rejoined the Victorian Survey. Here he proved an able and enterprising field geologist whose capacity for generalization and eye for important detail enabled him to rise quickly to the post of field surveyor on a salary of £500 a year. For the next seven years Daintree was engaged on the coal deposits of Victoria, first at Cape Paterson; later on the Bellarine Peninsula, and finally on a major survey of the coal beds at Bacchus Marsh. In the last work he was joined by C. S. Wilkinson, later the first Government Geologist of New South Wales, and their combined report gave the first indication of the Carboniferous age of the deposits at Bacchus Marsh, a view not generally accepted for over a decade. Selwyn also called on Daintree's special talents and took him with him, Dunn writes⁴, on his journeys across the Colony compiling the first geological sketch map of Victoria, which was published in 1863. On these, as on all his field excursions, Daintree carried his camera and his excellent photographs of the topography proved invaluable aids in the later working up of the sections and sketches for his reports. His last work in Victoria dealt with the geology of the Ballan district and contained Daintree's earliest theories on the formation of gold; research he was to enlarge and deepen in Queensland and to expound in his last paper to the Geological Society of London before he died.

Despite, however, the achievements of the Victorian Survey and the credit that accrued to this able team, the work of detailed mapping over areas as yet uncharted by field surveyors, "filling out quarter sheets of hills and gullies" as Daintree contemptuously described it, "offered little lasting satisfaction to a man of his temperament and enterprise" and during 1863, he set down his discontent in a letter to his friend and scientific mentor, the Rev. W. B. Clarke. "Does the hod man feel any satisfaction" he asked, "when he's carried his load of mortar up the ladder to the master mason who shall build the house; he earns his poor wage, but I fear must lose heart at last. I am weary of the hod."⁵ It was a sense of deep frustration shared by other members of the Victorian Survey which D'Oyly Aplin summed up explicitly in a later letter to Clarke. "In a young Colony for the field geologist to be spending nine months out of every twelve preparing this (the quarter inch map)" he argued "is a loss of their services in their own speciality which is as disheartening & distasteful to them, as it is detrimental to the progress of the work they are especially engaged to carry out."⁶

Daintree probably first met the veteran geologist in 1860 when Clarke paid a visit to the Victorian Survey en route to Tasmania in 1860, and though Clarke was thirty-three years his senior, the two men formed a warm and stimulating friendship which they cultivated by correspondence until their deaths, and it is Daintree's long correspondence with Clarke, preserved among his papers in the Mitchell Library that provides a major source of information on the younger geologist and affords a particular insight into the quality of his work and character.

It was Richard Daintree among Australian geologists who first gave public support to Clarke in his protracted dispute on the age of the New South Wales coal beds with the Professor of Natural History at Melbourne, (Sir) Frederick McCoy. This spirited debate had long engaged the attention of geologists in England and Europe who, suspending judgment at Clarke's request, waited for further determining evidence. Clarke, from his extended field researches in N.S.W., had, since 1848, emphatically maintained that the beds of flora and marine fossils respectively overlying and underlying the coal beds of N.S.W. were conformable with the coal and with each other and belonged to one geological system which he characterised as Palaeozoic. McCoy, for his part, working first on the fossils from the Hunter and Illawarra that Clarke had sent for examination to Cambridge, stoutly upheld, and continued to uphold when he came in 1854 to take up the Melbourne Chair, that while the marine beds were undoubtedly Palaeozoic, the overlying plant fossils belonged to a vastly differing period of geological time and most nearly resembled the true Oolitic (Jurassic) of Europe and India.

The discovery therefore by Daintree in 1860 while working on Cape Paterson coal seams of a fossil fern which McCoy identified as *Taenopteris*, a genus typical of the Oolitic (named by him *Taenopteris daintreei*) was regarded as significant evidence. It at once sparked off some keen debate between the two protagonists and for the next three years, the Royal Society of Victoria became the forum for a waspish exchange between palaeontologist and field geologist, over which the Governor of Victoria, the scientifically minded Sir Henry Barkly, presided. Barkly soon found that his role demanded all his resources of diplomacy and tact. Writing privately to Clarke, he acknowledged that he had found McCoy's first paper on the new fossil "rather warm even for scientific controversy" but he was bound to admit on the Professor's behalf, that the clergyman's remarks were "not very complimentary". He counselled restraint on them both in the interests of the sobriety of the Society's published transactions.

In December 1861, Clarke brought forward what he considered telling evidence from his field researches at Stony Creek, Maitland, to show that the whole country of the Maitland-Greta coal measures was occupied by a succession of sandstone beds full of fossils of Palaeozoic age including *Spirifer*, *Pro-*

ductae, *Conularia*, and *Fenestellae* exposed in railway cuttings and quarries and that about Maitland the plant beds were found in positions between rocks, assigned from their distinctive zoological fossils to be Carboniferous.⁷ This McCoy, supported by A. R. C. Selwyn, strongly declined to accept. There were hints that Clarke had mixed his fossils, dropping them among the shafts. In addition they argued that as the country round Maitland was disturbed by volcanic action, by simply protracting Clarke's section on the true scale, a downcast fault of many feet became apparent between the shafts.⁸

Into this maelstrom of scientific controversy, Richard Daintree sought to bring some conclusive facts. From the outset he had felt a special admiration for the veteran geologist and for his dedicated service to geology in New South Wales. "There is no one in Australia" he confided to Clarke "whose opinion if expressed from actual observation I would rather give in to than your own". Moreover, with a growing regiment of scientists, Daintree believed that it was to the field geologist rather than to the palaeontologist that science must look for the determination of the superposition of strata in an unexplored land. Possibly too he shared the view of the younger members of the Victorian Survey that McCoy's entrenched and aggressive judgements were not always conducive to the advance of science. In any event, during a three months' visit to Queensland in 1863, Daintree broke his journey on his way northwards to visit the railway cutting at Stony Creek, marking it as "one of the necessary pilgrimages for the wandering geologist in search of truth".⁹ His detailed measurements of shafts revealed an error in the distances of the clergyman's calculations, but he gave Clarke's arrangement of the New South Wales coal beds his unequivocal support.¹⁰

His evidence, he jubilantly reported to the clergyman on his return to Melbourne, was "overwhelming" and he had collected many fossils for its support. Moreover the fault, on which McCoy relied for the position of the *Spirifer* beds did not, in his findings, exist. "I've perfectly convinced myself," he wrote, adding cautiously, "if I cant convince McCoy".¹¹ His words proved prophetic. "Dear Clarke," he wrote a month later, "I have fired off my little gun, but am not satisfied myself about the strength of its powder."¹² McCoy had granted that the marine fossils from the railway section were Palaeozoic and conceded there was no evidence in the shafts to show that the beds were not in their natural position, but he asked, where were they on the Railway? To this question, neither Clarke nor Daintree had the answer, which waited on costly borings being made. Daintree had, in fact, been outmanoeuvred by the adroit Professor who reported his success to the Victorian Royal Society. "Mr. Daintree also tried to settle the points in dispute . . . but failed, from the very spot where sections might have given a definite result being covered up so that he could not advance our knowledge in the matter".¹³ Ultimately Clarke's important conclusions on the Upper Palaeozoic age of the Maitland coal beds, with Daintree's confirmation proved correct. In 1863, scientific tactics triumphed over scientific truth.

Daintree's leave of absence to visit Queensland early in 1863 was sparked off by his mounting discontent with his work on the Survey and by his friendship with the Hann family, pastoralists from Westerport. In 1862 Joseph Hann and his son William moved to Queensland and took up a pastoral lease on the Upper Burdekin, founding Maryvale. Daintree became a partner in their enterprise and shortly afterwards followed his money northwards on a visit of exploration. Scientifically this was not an idle interval for the geologist and his observations of this reconnaissance entitled "Geological Notes collected during a three months' leave of absence spent on a trip from Melbourne to the Upper Burdekin, Queensland" present a competent outline of the physical structure of Queensland from Moreton Bay to the Upper Burdekin, and foreshadow his major interest in Queensland's auriferous regions.¹⁴ In it he reported favourably on the gold prospects of the area from Kill Bullock Creek to the Fanning River, and reiterated W. B. Clarke's verdict, based

on specimens brought down by A. C. Gregory in 1856 from the junction of the Burdekin and the Clarke, that gold would be found in the quartz reefs near the river that bore his name. He reported auriferous drift in the streams flowing through the granite of the coast ranges from Broad Sound northerly to Mount Elliot and observed that, while the Silurian system of the region had apparently been denuded, the drift matrix of the gold resembled the hornblendic granite of Omeo, Gippsland. In a letter to Clarke shortly afterwards, he placed all the gold bearing rocks of Queensland in the Upper Silurian.¹⁵

“Taking a general view of the geology of Queensland” he concluded, “. . . it would appear that a belt of silurian rocks extends along the coast from Brisbane to the neighbourhood of Broad Sound, and that their strike being nearly parallel with the coastline has mainly determined its outline.”¹⁶ Daintree also reported his discovery of bones of *Diprotodon* in the drifts overlying the basalt near the Clarke River, the most northerly point where such fossils had been found, and described the basaltic outcrops of the Flinders, Burdekin and Mount Mayne, which he identified with those of similar age in Victoria.

While Daintree’s visit confirmed his belief in the promising pastoral prospects of Northern Queensland, the opportunity of untrammelled geological exploration undoubtedly added another lure. Within nine months of his return to Victoria, he had cut his connections with the Geological Survey and moved with his family to Maryvale. In his first year in the north, he found time from pastoral occupations to begin a series of geological tours which were to open up the Colony’s rich mineral areas. In 1865 he made a prospecting journey to the Cape River where he marked the existence of gold. In the same year he discovered copper at the junction of Leichhardt’s Lynd and the Copperfield Rivers which, with William Hann, he began to work as the Lynd Copper Mine. At the beginning of 1866, he visited the Bowen River Coal Field and noted the evidence of its Palaeozoic age. He reported the good news to Clarke; “In the Bowen River Coal Fields your statement as to the palaeozoic age of the Newcastle Beds is”, he wrote, “. . . entirely proven since we have spirifers similar to those in Russell’s shaft and the Railway section at Maitland overlying the coal seams; glossopteris being the most abundant fossil fern.”¹⁷

Daintree was, indeed, so encouraged by what he had seen of Queensland’s mineral resources on these preliminary surveys that after the Bowen River trip he proposed to the Government in Brisbane that they should employ him for twelve months “to develop the resources of this fine country”. It was not, however, a proposition the administrators, struggling with financial difficulties, were anxious to consider in 1866, and the following year the active geologist was off again, on his own initiative, to inspect the country round the Gilbert and Copperfield and to discover and name the Delaney and Etheridge Rivers after his lecturers at the Royal School of Mines. Throughout his travels he kept in lively contact with Clarke in Sydney, profiting in his isolation from the stimulus of scientific exchange and sending specimens and notes on the new territory illustrated with his topographical photographs. A detailed letter to the clergyman dated 23rd July 1867 itself reveals the considerable range of Daintree’s early researches in Queensland and the extent of his mineral discoveries, and it was evidently this letter on which Clarke, with Daintree’s generous consent, based his important address to the Royal Society of N.S.W. in September 1867.

“As news of the progress of Northern Queensland gold fields must have a special interest for you their first prognosticator” he began, “I will endeavour to give you an idea of what is going on.” He went on to catalogue the following areas—all regions where rivers ran through mica schists, as potential sources of payable gold: the Cape and Clarke Rivers; a large area of slates in the Upper Gilbert to the eastern tributaries



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of the Copperfield; the western tributaries of McKinnon’s Lynd; and the eastern and western tributaries of “Jardine’s Einsleigh” formerly called the Gilbert. In addition there were the copper lodes Daintree himself was working and an inexhaustible supply of coal at Bowen River. “And is this fine country” he impatiently asks, “to be strangled at birth by a bankrupt government, a thousand miles from its most southern port, its energies crippled by Stamp acts, ad valorem duties, heavy pastoral rents ere yet it has had time to start fairly a single one of its resources? Upon my word I really think so”.¹⁸

The fulfilment of Daintree’s forecast of payable gold at the Cape River in September, however, followed swiftly by Nash’s richer discoveries at Gympie, pierced official inertia at last, and, as parliamentary discussion turned on the possible appointment of a Government geologist, Daintree renewed his earlier proposal. He went further and in a letter to the Colonial Secretary of 17 December 1867 submitted a scheme for an organised geological survey of the Colony divided between two geologists working in the north and south. The cost, including salaries and expenses, Daintree estimated at £1,700 a year, and he offered his own services for the appointment in the north. At the same time he wrote to Clarke in Sydney to secure his influential backing and support.

Clarke’s intervention, as we have seen, proved decisive. Yet it was essentially Daintree’s scheme for a decentralized survey that the veteran geologist took up so successfully with the Queensland Parliament in January 1868, a scheme that W. H. Bryan condemned as Daintree’s “only serious mistake”.¹⁹ In 1868, however, it had the merit of securing its author his appointment as first geological surveyor of northern Queensland and of instituting a long overdue geological survey in that State.

From the outset, the emphasis of Queensland's geological survey was exclusively on the search for gold. Clarke's advice to the Government to act liberally to the surveyors and "not fetter them with directions" unfortunately went unheeded in Brisbane. Science for its own sake meant little to the legislators; active goldfields bringing migrants to the Colony meant infinitely more. Daintree was at once despatched to report on the Cape River Goldfields, while Aplin undertook the survey of the Gympie Goldfields in the south. Daintree's first report submitted in October 1868 set down his view, confirmed over fifty miles at the Cape River, that the richest goldfields were linked with the occurrence of elvanite dykes of diorite and porphyry traversing the slates for considerable distances, and he recommended that gold be looked for under similar circumstances on the Campaspe.²⁰

In November 1868 he set out to extend his mineral survey to the Gilbert Ranges taking with him, with the Government's consent, six prospectors to assist in the search for payable gold. On 20 April, 1869, he was able to report²¹ their success in several areas to the Government. In his report to the Minister for Lands two months later, Daintree, however, advised caution in promoting goldfields in North Queensland, where he considered the lack of deep drifts a great obstacle to alluvial mining of a permanent character, though quartz mining could be sustained.

While Daintree laboured on the Gilbert Ranges, the defeat of the Conservative Government by the Liberals in December 1868 foreshadowed the early end of the newly fledged Survey, and no estimates for its continuance appeared in the Budget for 1868-9. "The present Government have already proposed to do away with the Survey after June 30th" D'Oyly Aplin reported to Clarke in April 1869. In his view, Daintree had had better luck than he, "through being in more auriferous and altogether more richly metalliferous country. He is, too, far beyond the reach of Post and Telegraph wires and can consequently go where he lists. But this is not the case with me . . ." Aplin felt he had been literally "only a *Govt. prospector* and not a *Govt. geologist* at all". Daintree himself received notice of the Survey's abolition on his return from the Gilbert Ranges in June 1869, but, with the public support of W. H. Walsh, he fared better than his southern colleague and remained on after Aplin's retirement to carry out three further reports on the northern goldfields, at Ravenswood, Mount Wyatt and Cloncurry. In all he completed five reports on Queensland's auriferous regions while his far-ranging observations both before and during the Government surveys enabled him to compile a comprehensive paper "Notes on the Geology of Queensland" which, together with the first geological map of the Colony he presented to the Geological Society of London in 1872.

Daintree's appointment as geological surveyor of Northern Queensland terminated in 1870. Despite Walsh's attempts to field another survey of the Peak Downs, the Government's coffers were seriously depleted in 1870 and the first retrenchments inevitably affected science, which was regarded as a luxury in a young and struggling Colony. Nor was this attitude peculiar to the younger Colony in the north; Selwyn's successful Victorian Survey had been dismantled in 1868 while the Tasmanian Government Geologist, Charles Gould, was, like Aplin, looking for employment in 1869. There were dark forebodings among scientific men. "I suppose with Daintree's departure they will let geology die a natural death in Queensland" Sydney's Professor of Geology, A. M. Thomson opined to Clarke.²² In the event, five years elapsed before the Survey was reformed with A. C. Gregory's appointment in southern Queensland. In 1876, Robert Logan Jack became Daintree's successor in the north and three years later took control of a centralized survey as Queensland's first Government Geologist, on Gregory's retirement.

Yet Richard Daintree was not destined to join the band of displaced geological surveyors seeking jobs in 1870. He had amassed a large collection of fossil and mineral specimens during his wide reconnaissance of Queensland and he placed

them that year at the Government's disposal to represent the Colony's entry in the Exhibition of Art and Industry to be held in London in 1871. To these he added his geological map of the Colony and a remarkable collection of his photographs illustrating aspects of urban, rural and goldmining life, with the object of attracting migrants to Queensland. Daintree's enterprise was rewarded and he was named Commissioner to the Exhibition sailing with his family for London in February 1871. The imaginative venture, however, almost ended in disaster when their ship, the *Queen of the Thames*, was wrecked off the coast of South Africa. "I lost all my collections of specimens in the wreck" Daintree bemoaned to Clarke when safely arrived in England, "and have not a single fossil to put my hand on. My fine collection of Clarke and Cape River lepidodendra, sigillaria, stigmara etc. are all at the bottom of the sea, together with the Devonian limestones of the Upper Clarke."²³ From the wreck he managed to salvage his photographic negatives and his geological map of Queensland. In the event, it was Clarke who made good the loss of fossils by shipping his own collection from Queensland, many the fruit of Daintree's own gathering, to England, and with Daintree's resilience and hard work the Queensland exhibit was highly successful.

Later that year, Daintree's positive vision of Queensland's potential led him to seek the Colony's vacant Agent-Generalship in London. Again he applied to intercede for him with the Colonial Government. "If I get it, I can be of good service to Colonial science generally," Daintree wrote, "as I can get examinations made by the best men of any novelties that deserved it".²⁴ It was hardly an argument that needed special urging on the older geologist, long hampered in his own researches for the want of able palaeontologists in the Colonies. Moreover he held Daintree in high regard and earlier that year had sponsored him as one of the first honorary members of the Royal Society of N.S.W. above the claims of the eminent T. H. Huxley. Now he readily sent his testimony to Walsh and Palmer and Daintree's appointment as Queensland's Agent-General was confirmed in January 1872.

Throughout his four year tenure of office, Daintree proved an able representative for the Colony and made good his promise to science. Within three months of his appointment, he had turned the exhibition materials into a permanent Queensland annexe in which he sought to interest the other Colonies to make it representative of Australia; but "no instructions" was their reply. "Oh for a forty parson power to rouse the inert masses of slumbering politicians in Australia," he exclaimed to the one man in Australia who shared his enthusiasm; "however plucky little Queensland in the meantime goes for an Annexe of her own."²⁵ He worked tirelessly in promoting a knowledge of Queensland through lectures, exhibitions, and through his own photographs, while his "Handbook for Immigrants to Queensland" accompanied by photographic illustrations and a map showing mineral areas was published in 1875. Meanwhile collections of specimens flowed to him in London from Clarke, W. Hann, A. M. Thomson and other Australian collectors. Some of these, which Robert Etheridge Snr. identified found their way back to the Queensland Museum, while Clarke's important collection of Queensland's Cretaceous fossils was also returned to him by Daintree and was subsequently lost with the rest of his collection in the Crystal Palace fire. Daintree also found time to serve the interests of the Colony's Acclimatization Society reporting to Clarke in November 1873 that his immigrants that year had included six red deer and many pheasants, and that he had his eye on some game from Africa.

Any spare time he could salvage, he gave to his geological interests, reading his paper on the Geology of Queensland to the Geological Society of London, of which he was a Fellow, in April 1872. Daintree described this important review modestly to his friend as "only a small skirmishing party told off to feel the way for the advance of the main body of facts and figures re Queensland". Yet in it he set down a number of observations,



Early gold-mining, Gympie; a specimen of Daintree's geological photographs.

some already foreshadowed in his correspondence which Etheridge's determinations confirmed, that laid pioneering foundations in Queensland's geology. He defined the rocks and fossils of the Bowen River and other northern coalfields as Carboniferous; noted the Carboniferous age of the Don River fossils of the Gympie series and assigned the Burrum Coal formations, together with the Ipswich coal series, to the Mesozoic, which he regarded as equivalent to the Carbonaceous series in Victoria. He described the rocks of the Flinders area and classified them as Cretaceous; the Maryborough beds he placed at the base of the Cretaceous.²⁶

In London Daintree also developed a delighted interest in microscopic petrology, and as his health began to wane in the harsh English winters, he came to turn increasingly to this, describing it as "the most engrossing hobby I have ever taken up". "I am getting rock specimens from all parts of the world for examination under the microscope," he wrote Clarke on 15 August 1873, "especially ore bearing rocks other than or distinguished from lodes, and am having my eyes really opened to the structure of crystalline trappean rocks especially, and am more and more impressed with their value as mineralizers and mineral bearers."

Meanwhile, in Australia, the gold rushes to the Palmer during 1873 brought Daintree recognition in the Colony. "My own share in the practical and theoretical opening up of the mines I look back at with pleasure" he acknowledged in December that year, "and though no doubt my own breakdown was caused partly by it, I do not repent it in the least and would do it over again."²⁷ He was now aware that his days of field work were over and that he "must fall back on the closet and microscopic petrology". Yet his scientific zest burned as brightly as ever. Had Clarke read about the geysers in the Yellowstone country, he asked in a letter of April 1874; he hoped to see them before he died to assist him with his study of trap and volcanic rocks. "It is just what I have pictured to myself when rocking in my hammock on the Gilbert and considering how the great quartz 'blows' were formed. . . . Shall we hereafter see how all these things have been brought about, and shall we know everything, if so why worry about them now, but still we cant help it, and this microscopic petrology has me fast in its clutches & is more interesting than even exploring new country".

In 1876 Daintree retired from the Agent-Generalship. His own ill-health, the discharge of the office's chief clerk on a matter

of honesty, and a growing dissatisfaction in the Colony with the quality of the British immigrants sent, led to his submitting his resignation. His frank correspondence with the Colonial Secretary dealing with these matters was published by Parliament, yet no discredit accrued to Daintree and the same year he was created a C.M.G. for his services to Queensland. "I intend to make science my recreation" he then wrote Clarke, and he sent his warm congratulations on the 3rd edition of Clarke's *Remarks on the Sedimentary Formations of New South Wales*, "which brings everything in Australian geology up to date".²⁸

It was Daintree's last letter to his old friend; their long and rewarding correspondence was over. In February 1878 Daintree gave his last paper to the Geological Society of London "On certain modes of occurrence of gold in Australia",²⁹ a subject that had long engrossed him, and two months later on 20 June 1878, at the age of forty seven, he died in London. Four days earlier, on 16 June, his old friend and colleague, the Rev. W. B. Clarke, died at his rectory in North Sydney.

Richard Daintree emerges as an original and enterprising pioneer of Queensland geology whose practical contribution to the search for minerals laid foundations for the mining development of the State. Far in advance of his contemporaries in recognizing the potential of the Colony, he used his talents, scientific, artistic and, in the end, his very life and strength, to promote her interests. Essentially he was a visionary who possessed a special concept of his science; first to push his frontiers forward, and to make its findings available to practical men. His paternal concern for the gold digger is a striking feature of his geological reports, while his "Handbook for Immigrants" is crammed with the practical and scientific details of his long research. Though Daintree himself discovered several goldfields, he was content to reveal the scientific signposts to the metal and to leave the rewards and priorities so dear to the prospector, to other men. These attitudes of the dedicated geologist he shared in large measure with the "father of Australian geology" his friend and patron, the Rev. W. B. Clarke and, significantly, it was Daintree among the growing regiment of younger geologists who followed Clarke to Australia that the veteran geologist held in the highest affection and esteem. Finally, to the talents of the creative geologist, Daintree added the skills of the photographer whose eye for sharp detail and contrast and whose evocative feeling for the Australian landscape and for its settlers and prospectors is clearly revealed in the large collection of his photographs preserved in the Oxley Memorial Library and the Queensland Museum.

Ann Mozley,
Research Associate, Bassler Library,
Australian Academy of Science,
Canberra, A.C.T.

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