A 'Strange Fauna'

T.J. PARKER (1850–1897) AND THE CREATION OF ZOOLOGICAL KNOWLEDGE IN OTAGO

GENERAL HISTORIES OF NEW ZEALAND consistently overlook the contributions that nineteenth-century men of science made to the colony. More specialized histories of New Zealand's natural history, and of scientific men, are patchy and dominated by environmental concerns. Because the impact of European settlement was late, swift and deliberate, it is not surprising to find the well-documented changes have provided scope for historical enquiry. Cataloguing the nation's flora and fauna, it is assumed, was the sole occupation for those expert in natural history. It is further assumed that their reasons for such inventory-making lay with exploitation of the nation's natural resources. But this one-sided picture of the engagement with the natural world is flawed. It short-changes the efforts of those involved. No allowance is made for the motives of the investigators, the constraints under which they worked, nor for the varieties of science carried out.

As a corrective to these views, this paper illuminates the New Zealand career of Englishman Thomas Jeffery Parker FRS (1850–1897), the first trained biologist in the colony. Although now largely forgotten, he was well known within the European community of scientifically minded men post-*Origin of Species* (1859). The reasons for the historiographical neglect of Parker lie partly with the longer shadows cast by the New Zealand triumvirate of 'H-men': Sir James Hector FRS (1834–1907), Captain Frederick Wollaston Hutton FRS (1836–1905), and Sir Julius von Haast FRS (1822–1887). They all lived longer than Parker, and are remembered for the large number of catalogues and lists they produced, rather than the largely esoteric science that Parker practiced. Hutton, Otago's provincial geologist and Parker's immediate predecessor in the museum, left Dunedin for Christchurch's Canterbury College in 1880 while Haast, the founder of the Canterbury Museum and provincial geologist, was already there. Hector, situated at the centre of scientific power in Wellington, controlled three scientific institutions – the Geological Survey, the New Zealand Institute and the Colonial Museum – and inevitably had larger posthumous fame than Parker. Yet in his own lifetime, Parker was as eminent as these men. He should be better known. In the words of a contemporary, 'Parker is a most deserving

man – he has done some very good work, and is to be especially commended for having made good use of the opportunity afforded him by his position in Otago among a strange fauna'.[1] This most deserving man participated in debates in several spheres: the physical world between London and Dunedin; the intellectual world within biology itself, between a supposed old-fashioned descriptive approach and a newer experimentally based approach; and the doctrinal world between Christian faith and agnosticism (which is too large a subject for consideration here). He coupled an evolutionary zeal with a deep commitment to original research, and underlying his working life was a conviction that evolution provided the fundamental guiding principle of biology.

This essay locates Parker in Dunedin but places him within an intellectual and international framework of evolutionary biology and provides a concrete example of how knowledge traditions were transplanted. Parker's published corpus, of 40 articles in both New Zealand and British learned journals, can be viewed not only as part of the history of science discourse on the dissemination of knowledge but also as part of the recent scholarship on cultural colonization. It thus fuses two approaches from apparently disparate historical traditions: on the one hand, the history of science and its concerns about the universality of knowledge created locally, and on the other hand, imperial history and its concerns about knowledge production as a continuing form of colonization. However, there is more common ground between the two approaches than might be apparent at first glance. James Secord's seminal paper 'Knowledge in Transit' argues for the need to think about texts, images, objects and actions as modes of communication and not simply as the material products of science.[2] From a different perspective to Secord's history of science, but one closely allied to it, Tony Ballantyne asks that New Zealand historians seriously engage with questions of the circulation of knowledge.[3] These, he maintains, should be at the heart of work on the culture of colonization. Although not focused on scientific matters, Ballantyne's study of the intellectual life in Gore shows how colonists accessed information through print and mutual improvement societies and how they used that knowledge to further their cultural understandings.[4] Both Ballantyne and Secord advocate a wide frame of analysis. Ballantyne's argument for moving beyond national identity as a rubric for understanding New Zealand's history has echoes in Secord's desire for historians of science to embrace a narrative that pays attention to cultural history.

The focus of this essay, then, returns to 'situated knowledge'. Although such studies, according to Secord, may be 'a standard model for historicizing science', in New Zealand with its tiny historical community such accounts

are lacking.[5] More to the point, this paper aims to provide empirical answers to two questions: how did Parker, a leading member of Dunedin's intellectual elite, create knowledge? And what sort was it? Parker dissected specimens and prepared them for display and teaching purposes in the basement of the Otago Museum. His investigations ranged from describing opportunistic discoveries – for example, of fish washed ashore – to carefully planned and executed in-depth studies on the morphology of New Zealand's iconic birds, the kiwi and moa. He made the written results of his researches known for an audience of like-minded men of science in peer-reviewed journals (a recently introduced concept in the late nineteenth century) – and for wider audiences in magazines like the London-based weekly *Nature,* and the short-lived Dunedin-based *New Zealand Journal of Science.* He also participated in Dunedin's vibrant platform culture by lecturing when called upon.[6]

Parker arrived in Dunedin in 1880 after working in London for eight years as demonstrator for Thomas Henry Huxley FRS (1825–1890). His arrival was eagerly anticipated: 'Otago is fortunate in obtaining in the new Professor a pupil of the most eminent living English biologist', a local reporter enthused.[7] The *Otago Daily Times* published a letter from the London-based selection committee, with Huxley as chair, which listed Parker's publications.[8] The readers could not doubt that he was the best of the 'numerous and highly qualified' candidates for the joint post of professor of biology and curator of the Otago University Museum.[9] While in London, Parker undertook original researches 'on his own initiative, the great master [Huxley] being far too engrossed in his own special occupations' and began to establish his reputation as a careful and thorough biologist.[10]

Most New Zealand colonists took a utilitarian view of science, regarding the activities of scientific workers with approval insofar as such work had obviously practical benefits. The president of the Otago Institute regarded its 1883 activities as 'eminently beneficial, not merely in the actual accumulation of knowledge, but also in adding comforts and facilities to life'.[11] This utilitarian view of science adds weight to the nineteenth-century presumption that science – either as knowledge gained, or as an activity in itself – was a mark of progressive cultural achievement. For his part Parker identified young fish for the Otago Acclimatisation Society as they attempted to introduce salmon.[12] But he never commented on the idea of introducing European fauna: itself a form of cultural domination and colonization.[13] We know nothing of Parker's opinions on a number of biological issues that faced colonial New Zealand.

However, Parker took advantage of zoological opportunities as they presented themselves. Soon after arriving in Dunedin, Parker found a new

species of small burrowing sea cucumber 'entangled in red seaweed' on a beach in Otago Harbour. He identified it in his first New Zealand paper as 'a representative of a genus and family hitherto unknown in New Zealand'. In this deliberately short paper he confined himself to 'recording its discovery and giving the systematic characters of the genus and species'.[14] He gave the sea cucumber the name '*Chirodota dunedinensis* n.sp.', presumably in honour of his new home.[15] New Zealand scientific readers more used to papers that described new species in depth might have been misled as to Parker's overall zoological interests because 'the work of the systematist and maker of species was not to his taste, while synonomy – that burden of the specialist today – was a subject he shunned'.[16] And yet, Parker *did* identify new species and engage with systematics, thereby making a personal contribution to New Zealand's inventory.

To nineteenth-century minds the progress of science expressed itself in inventory-making and the desire to list the nation's fauna. From Christchurch, Captain Hutton produced lists in order to fulfil a 'much-felt want'.[17] When Hutton arrived in New Zealand in 1866, he found its 'zoology practically untouched', as only some birds and 'the more conspicuous animals' had been described previously by visiting expeditions.[18] As his obituarist noted, Hutton carried out his self-appointed task with 'determination and enthusiasm' and 'from his pen in rapid succession catalogues of fishes, molluscs, crustaceans, worms, echinoderms, sea-anemones, and insects of all kinds' appeared. This culminated in 1904 with the publication of his *Index Faunae Novae Zealandiae*.[19] Others in the colony also produced catalogues, the most notable being Captain Thomas Broun's (1838–1919) volumes on beetles, published in seven parts between 1880 and 1893.[20] Parker contributed to such inventory science infrequently and only a handful of his original papers can be considered to fall into this category.

Expertise with different animal groups was spread thinly in the colony. In 1882 the first issue of *The New Zealand Journal of Science* listed only seven scientific workers covering some groups of molluscs, beetles and crustaceans, while the next issue included workers on annelid worms and some moths.[21] No further lists appeared. Zoological science in New Zealand operated on a small scale and investigations were often based on chance opportunities. For instance, fishermen brought items of interest to Parker, which provided material for accounts he published in the *Transactions and Proceedings of the New Zealand Institute.* On one occasion a large ribbonfish was cut into sections for transport from Moeraki, about 40 miles north of Dunedin, which meant Parker could not stuff the damaged skin so he mounted the 12-foot skeleton instead.[22] This fish, *Regalecus argenteus,* which Parker named for its

stunning silvery colour, proved a fruitful avenue of research. He made careful comparisons with five other ribbonfish specimens caught previously in New Zealand waters over a period of 23 years. He published his observations both in New Zealand and with grand illustrations in *The Transactions of the Zoological Society of London*.[23]

On a global scale, species inventory flourished in the late nineteenth and early twentieth centuries. In the USA large well-funded government surveys deliberately set out to collect specimens. Between 1887 and 1940 approximately 200 large-scale survey-science global expeditions inventoried flora and fauna wherever they camped.[24] Nothing like it occurred in New Zealand. Historian Suzanne Zeller claims that in Canada, cataloguing or 'inventory science contributed substantially to the modern intellectual framework in which Canada was invented'.[25] She maintains that the new information produced from surveying the natural resources helped form the idea of a transcontinental nation. In Australia too, notions of nationhood were based to some extent on collections of natural history. Historian Libby Robin has pointed out, for instance, that Australia established two 'national' museums, Sydney in 1827 and Melbourne in 1854, long before federation in 1901.[26] New Zealand's physical environment, and key icons like ferns and kiwi, all feature in notions of nationhood, but the desire to collect and catalogue the nation's fauna and flora has not been acknowledged as a contributory factor.[27]

Men of science involved in cataloguing viewed the work as preliminary to understanding the 'phenomena of animal life'.[28] Explaining the origins of New Zealand's unique fauna motivated both Parker and Hutton, although their investigative approaches differed. Hutton interested himself in the geographic distribution of animals and plants, while Parker devoted himself to developmental morphology.[29] It is important to realize that more was going on than mere listing of species. Each new species description had to be placed in a well-established hierarchical taxonomic classification scheme that to late nineteenth-century men of science reflected progression through the animal kingdom. The scheme expressed relationships, or affinities, in phylogenetic trees that provided clues to evolutionary origins. Biologists invoked 'principles concerning origin, function, development, reproduction, and composition'.[30] On this understanding, therefore, inventory science cannot be mapped directly onto a concept of national identity, however much it had a place in the formation of scientific collegiality, and by extension nationhood, as Zeller maintains. Inventory science may, or may not, add to a sense of national identity – it is not in itself a nationalistic ambition. Rather, intellectual curiosity drove Parker, and men like him, to investigate New

Zealand's particular collection of creatures so obviously different to those in Europe or in neighbouring Australia. The creatures pinned to dissection boards did not die in vain: the knowledge they yielded at scalpel point circulated by point of pen.[31] Scientific peers throughout the world gained insights to locally generated knowledge through well-defined routes in the maze of scientific print culture. The universality of scientific purpose is here revealed as a desire to understand a bigger zoological picture rather than 'mere cataloguing' – a disparaging and present-centred phrase still in use amongst biologists.[32]

As well as fish and other marine creatures washed ashore, Parker worked on several iconic New Zealand birds – notably on members of two families of birds, the flightless Ratitae which included kiwi and moa, and the Rallidae which included takahē, pūkeko, and woodhens. Takahē possessed a curiosity and rarity value both for zoologists and members of the public because they were on the verge of extinction in the late nineteenth century. When rabbiters sent the remains of a bird caught live on the shore of Lake Te Anau, Fiordland, to Dunedin in 1880, Parker made a thorough study of the skin and 'roughly-cleaned skeleton of the trunk'.[33] He published the results in the annual volume of the *Transactions and Proceedings of the New Zealand Institute.*

Parker was ambitious: having failed to secure a professorial appointment at Owen's College, Manchester in 1879, he moved to New Zealand. The chance to work on iconic species likely influenced his choice as much as the noted scarcity of jobs for trained biologists. The move became a successful strategy as his work on iconic species contributed to his hard-won respected position in zoological circles. The advantage of location, and access to iconic species, was not without precedent. Historian Ruth Barton made a similar point in her study of Julius von Haast (1822–1887) and his ability to make capital gain from moa bones.[34]

Parker puzzled over the oddity of New Zealand's creatures. The kiwi, he wrote, 'is the most anomalous and aberrant of existing birds and … may be considered as one of the proudest possessions of our colony'.[35] Moa were just as odd. Large and flightless, extinct and endemic, they fascinated both palaeontologists and zoologists alike. Richard Owen FRS (1802–1894), the famous Victorian anatomist and palaeontologist, formally described moa – and correctly guessed they were flightless – from a single leg bone sent to him at the British Museum in 1840.[36] 'A first glance at the magnificently illustrated series of memoirs by Sir Richard Owen on the osteology of the Dinornithidae [moa family] gives the impression that the whole subject has been exhausted.'[37] These opening words of Parker's paper on moa seem placatory but he did not hesitate to tackle eminent figures. He picked on what

he saw as Owen's inconsistencies and errors, while politely recognizing that the material Owen had to hand was far from complete. Parker had, as Huxley observed, 'plenty of courage at his disposal, when that quality is wanted'.[38] Parker assessed moa evolutionary origins but complained that whether they had a 'distinct or common origin' was 'a very complex question. The main difficulty lies in deciding what characters should be considered as of phylogenetic importance and what merely adaptive.'[39] Parker wanted to sort out the confusion arising from the fragmentary nature of moa remains. 'It is extremely seldom', he wrote, 'that the bones of a single individual skeleton, or even the parts of a single individual skull, are found associated together and apart from other individuals.'[40] Parker produced a phylogeny based on careful, measured observations of anatomical evidence.

Studying moa marked a rite of passage for a serious nineteenth-century biologist based in New Zealand.[41] Parker was no exception. Hector, Haast and Hutton contributed to moa science: they debated the causes for the recent demise of the birds and each produced classification schemes. Hutton lent Parker a considerable number of moa specimens, apparently unperturbed that Parker was about to revise his classification scheme.[42] Hector summarized the fascination with moa in an address to the Otago Institute: 'we have in New Zealand these wingless birds developed in immense profusion, and not only in profusion of form, but in profusion of numbers, … not to be found in any other part of the globe'. [43]

During the first half of the nineteenth century, anatomical debates centred on what became known as the form versus function debates. Did observable body parts assume the shape they did because of the function they served? Or did the forms reflect underlying laws independent of function? Whilst these concerns, articulated in London by Owen, seemed old-fashioned by the late nineteenth century, the traditions on which they were based – empirical, measured, objective observations – formed the basis of newer embryological debates.[44] Parker nonetheless addressed the same issues and problems that his counterparts in Europe faced.

Beyond opportunistic and inventory science, Parker sought to understand evolution. 'With the publication of the *Origin of Species*, in 1859, a better day dawned for biology', he pronounced in his first public lecture to inaugurate the new session of the University in May 1881. It was a better day as far as Parker was concerned because Darwin had 'by the immense array of well-arranged facts and sound generalisations' brought the study of biology 'within the all-embracing law of evolution, thus making belief in the theory of special creation once [and] for all impossible to the student of nature'.[45] While the underlying doctrine of evolution formed the theoretical basis,

zoologists seldom debated the mechanism amongst themselves.[46] Parker's particular contribution to the science lay in an investigation of the phylogeny of the moa family (Dinornithidae) and the developmental embryology of kiwi (*Apteryx*).[47] These substantial pieces of research required deliberation and planning on Parker's part to obtain both adequate funding and enough specimens to make meaningful comparisons.

In 1883 Parker applied for, and received, a grant of £75 from the British Government Grants Committee administered by the Royal Society of London. Grants were frequently awarded to men of science to help with the substantial cost of publishing illustrations, and occasionally the award of personal grants enabled research. The committee minutes record that the sum was awarded for the 'purpose of obtaining specimens of *Hatteria* [tuatara], *Apteryx* [kiwi] etc as recommended by Prof. W.K. Parker and Prof. Moseley, and that he [T.J. Parker] be informed that a further £25 will be forthcoming if necessary'.[48] That Parker received a grant from London reveals four things. First, he had powerful allies there; second, there were some costs to be defrayed; third, colonial resources were insufficient; and last, elucidating kiwi biology had universal appeal. The powerful allies were his father and Huxley. Parker's father, William Kitchen Parker FRS (1823–1890), a renowned anatomist, had previously received personal grants totalling £2500 from the Royal Society over a period of nearly 30 years.[49] These comprised the lion's share of such grants made between 1859 and 1888.[50] Thus knowledge about the availability of grants fell within Parker's frame of reference even before his move to New Zealand. From the Royal Society minutes we can see Parker's father and Henry Nottidge Moseley FRS (1844–1891), professor of human and comparative anatomy at Oxford, made the recommendation and Huxley, in his capacity as secretary of the committee, signed the application.

Nepotism flourished perhaps? Despite persistent complaints from Scottish and Irish quarters, it was widely assumed that the Government Grants Committee favoured 'known' men with established reputations or with personal connections and who lived in or near London.[51] Parker broke this mould only in the last respect – and only just. He had moved from London only two years before he applied for grant aid. Parker's scientific career was guided, if not mapped, from London and he acknowledged his father's influence: 'I have enjoyed the privilege of frequent correspondence with my Father on the subject-matter of my work', he wrote in the introduction to his paper.[52] None of this correspondence has survived, so the extent and nature of the guidance is unknown.

Getting hold of enough material – kiwi eggs in different stages of development – to 'work up' remained a problem. Parker acknowledged the

help, encouragement and loan of specimens of kiwi from a number of other New Zealand naturalists, including Walter Lawry Buller FRS (1838–1906) and Thomas Frederick Cheeseman (1845–1923) in Auckland, Hutton and Henry Ogg Forbes (1851–1932) in Christchurch, and Hector and Thomas William Kirk (1828–1898) in Wellington. Locally, he thanked his friend, the professor of anatomy and physiology in the Medical School, Dr John Halliday Scott (1851–1914). Parker formally acknowledged his main supplier, Richard Henry (1845–1929) in Fiordland: 'It is only right to state that my obligations to my collector, Mr Henry, are out of all proportion to the sums paid to him for specimens.'[53] Because of the Royal Society grant, Parker published his 134-page treatise in the prestigious *Philosophical Transactions of the Royal Society*. Parker felt sure that his study was instrumental in his election as Fellow of the Royal Society in 1888.[54] However, the citation on his election certificate does not mention his research on the embryology of the kiwi. His election, successful at the second attempt, had initially been organized in 1886, before even a preliminary note on kiwi had been published, so it is unsurprising this specific piece of work is not cited.[55] But Parker was probably right: it was a substantial contribution to New Zealand zoological knowledge.

Late nineteenth-century men of science hoped slicing embryos would reveal clues in the anatomical development of the individual that would in turn elucidate the development of the group as a whole. 'Anatomy' said Parker, 'is an exact and most valuable guide to affinity, especially between closely allied forms but ... [the] results obtained by this method must be tested and corrected at every point by the study of development.'[56]

Development in this context is a near-synonym for evolution, as Parker explained: 'As an organism develops from the simple egg-cell to the complete adult, it passes rapidly through stages corresponding in a general way to those which its ancestors passed through in the course of their evolution, during long ages, from some simple unicellular form, and it is the recognition of this principle – that the individual is a recapitulation of ancestral development – that has given to embryology so important a place in modern biological work.'[57] Descriptive embryology received a boost from Darwin, who had no doubt that embryological relationships helped document his notion of common descent. In the *Origin of Species* he stated that 'embryology rises greatly in interest when we thus look at the embryo as a picture, more or less obscured, of the common parent-form of each great class of animals'.[58] Darwin's German champion, Ernst Haeckel (1834–1919), based in Jena, boosted the interest in embryology further with his theory of biogenetic law. His handy catch-phrase 'ontogeny recapitulates phylogeny' became influential within the scientific community. In the passage quoted above Parker unequivocally supports Haeckel's theory.

Haeckel's biogenetic law amounted to a series of generalizations, which historian Frederick Churchill asserts had been arrived at more 'by fiat than observation'. [59] Haeckel based it on a willing acceptance of evolution and a conviction that there existed a physical basis to phylogenetic history that could be traced using embryological evidence alone. In the 1870 second edition of *Natürliche Schöpfungsgeschichte* (*The History of Creation*) Haeckel responded to critics who argued his approach had been utterly materialistic. He thought that whatever might be called 'matter' could just as easily be considered 'spirit', and that therefore a fundamental unity existed between the inorganic and the organic.[60] Twenty years later, charges of materialism levelled at the theory did not seem to perturb Parker. It is worth noting that Haeckel's popular books outsold Darwin's and more people learnt about evolution from his publications than from Darwin's.[61] In Britain biologists customarily looked to Germany for theoretical understanding and it was natural for Parker to follow suit. Like others of his generation, Parker took the theory of Haeckel's biogenetic law at face value, stating that 'it is an established principle in biology that the history of the individual is a recapitulation of the history of the race'.[62] The insight the theory seemed to offer into the problems of organic evolution reached its zenith during the decades from 1870 to 1900. By accepting it Parker found himself in good company, amongst the many biologists who found recapitulation because they expected to see it.[63]

In his treatise on kiwi, Parker presented embryological evidence of kiwi phylogeny based on observations of the formation of the wing or forelimb. This led him to clarify earlier conclusions reached by Owen's evidence from the adult skeleton. Parker argued that the group were 'the descendants of birds which possessed the power of flight, a view which, I believe, Owen was the first to advance'.[64] Owen had written a series of papers on the kiwi and its relatives, culminating in a major monograph, *Memoirs on the Extinct Wingless Birds of New Zealand*, in 1879.[65]

Parker's lengthy kiwi paper was read in absentia before the Royal Society on 17 April 1890 – though it is difficult to imagine it being read verbatim. A separate synoptic report in the weekly science magazine *Nature* provided details over two columns, but noted that there was not enough room 'to give anything approaching a satisfactory abstract of the whole'. The reporter was particularly impressed with the tables of measurements 'showing the relative proportions of the various regions of the body in different stages of development, illustrating the "law of growth," [which] add greatly to our knowledge of this remarkable genus'.[66] Parker took measurements covering as many embryonic bones as possible, which he presented in tables. The extent

of the numerical information added veracity to his truth claims and helped establish Parker's authority on the kiwi. After all, as historian Robert Kohler posits, 'issues of credibility, trust, and authority are the universal elements of any science anywhere'.[67] Not content with listing raw figures, Parker made graphs of the variations in rates of growth. Neither Parker nor the *Nature* reporter explained the significance of this numerical approach. Parker's peer group knew, however, that he sought to throw light on variation, in this case within and between the species of kiwi, the 'laws of growth' being one of many contemporary explanations of evolution, variation and inheritance.

In the paper Parker briefly explained his theory of the laws of growth as they applied to kiwi. They occupied a total of two pages, including two tables of raw measurements, three interpretive graphs and a single paragraph in the summary of results from the paper's total length of 134 pages. Mathematical and statistical analyses made more frequent appearances in the scientific literature towards the end of the nineteenth century. Parker followed the fashion of changing the primary account of empirical evidence into graphs, which made analyses more readily understood than raw data tables.

Solving problems by measurement was a typical response by men of his generation. As part of his daily struggle to be objective and observe accurately, Parker discovered tensions inherent with measurement. The scientific ideals of rationality, restraint and rigour that emerged in the mid-nineteenth century encouraged Parker's generation to be exact: precision and accuracy were valued.[68] Parker himself reiterated the thought when he spoke to the Otago Education Institute in 1883. 'Next to reasoning,' he said, 'the most important thing for a man to be able to do is to observe accurately.'[69] Parker produced good quality observations and his reputation extended into Europe. German biologist Robert Wiedersheim (1848–1923) commented: 'all of his works give an impression of great conscientiousness; results are arrived at through care and accuracy. Everyone who deals with modern scientific literature will appreciate his precision.'[70]

Parker's analysis is an example of the growing specialization in biology. Towards the end of the century 'nature' could be found just as easily in laboratories as in the field. Laboratory observations were tempered with measurement and analysis. Moreover, the scientific article itself gained an argumentative function not previously obvious. Scientific language was not a simple transparent transmitter of factual knowledge. Beyond the arcane, detailed language the systematists used to construct classification schemes and phylogenies, knowledge had to be created through maths and graphs.[71] Parker would have wanted to show he was at the forefront of introducing new statistical methods to zoology – particularly as he submitted the thesis to the

University of London for a Doctor of Science degree, conferred in absentia in 1892.[72]

Contemporaries viewed Parker’s original scientific research papers in different ways depending on their location, knowledge and status. ‘Both in this country and in New Zealand he has achieved conspicuous success … and high reputation which he has gained as an original investigator in various branches of zoology’, wrote Philip Herbert Carpenter FRS (1852–1891), the biology master at Eton College, Windsor. Carpenter, Parker’s exact contemporary, was like him no longer at the centre of what many thought of as ‘an important sphere of action at home’, meaning London.[73] Sir Michael Foster FRS (1836–1907), professor of physiology at Cambridge and friend of both Huxley and Parker’s father, appreciated the younger man’s efforts. ‘He has done some very good work, and is especially to be commended for having made good use of the opportunity afforded him by his position in Otago among a strange fauna.’[74] Others also appreciated Parker’s investigations on indigenous fauna and recognized, too, the economic constraints that faced him, ‘leaving the refinements of histology and the like for those at home’.[75] Yet when Parker sought a reference from his mentor Huxley, by then elderly, in 1894, he received a measure of faint praise: ‘As to capacity and knowledge – he is not by way of being a man of genius … [but] his fundamental scientific work is all exact and careful.’[76] Huxley implied Parker was a follower, not a setter, of trends.

He received fulsome admiration in New Zealand. ‘The science of morphology has been so long and honourably identified with the name of Parker … we congratulate him as a man who manages to unite great powers of industry and observation’, a reporter noted.[77] Whilst local pride knows few boundaries and has no standards for comparison, the hagiographic comment from a newspaper correspondent based in Wanganui that ‘[Parker is] one of the most prominent biologists in the British Empire’ reveals a widespread interest in Parker’s activities.[78] A Dunedin review of Parker’s illustrated paper on the ribbonfish admitted the ‘technical and scientific character [are] quite beyond our powers of criticism’, but that did not stop the reviewer admiring the effort: ‘It is very pleasing to us, and, we feel sure, to the public of Otago, to see that the scientific labours of one of our professors is appreciated at Home … Professor Parker has been working hard at original research.’[79]

Nineteenth-century obituarists tended to write hagiographic eulogies and Parker’s ran true to form. G.M. Thomson, science master at Otago Boys’ High School, wrote of Parker as a ‘man of intellectual capacity far above the average … Professor Parker’s work was of the highest character … he professed one subject, and he made himself master of it’.[80] However, specific

assessments of Parker's research efforts came from the referees' reports for his kiwi papers. These private views were more critical. Adam Sedgwick FRS (1854–1913), reader in zoology at Cambridge, wrote: 'Altogether the Memoir does great credit to the author. It is not a work which has any general interest. It will not even appeal specially to the morphologist, unless indeed it be to an ornithological morphologist. There can be no doubt that the memoir should be published: it will always have a value. But it is equally without doubt that the subject is a dry one, and appeals to a very small class.'[81]

The other referee, Arthur Milnes Marshall FRS (1852–1893), professor of zoology at Owens College, Manchester, thought it should be published because '*Apteryx* [the kiwi] is almost certainly doomed to speedy destruction & … while the opportunity still offers, as complete a series as possible of accurate measurements & figures should be obtained & permanently recorded'. Parker had dutifully recorded a fulsome set of observations and accurate measurements. But Marshall was not as prepared as Sedgwick to consign Parker's hard work to dry dusty library shelves, enthusing that 'the paper is of great importance … it is highly desirable that all the plates should be published'.[82] A further contemporary assessment of this 'admirable paper of Professor Parker's', published as a review in the American weekly journal *Science*, held it up as 'one of the classical publications of the Royal Society … [It] will receive a hearty welcome from anatomists … as a most thorough and capable contribution to the subject.'[83]

Parker's study of the kiwi, and the moa, brought New Zealand's fauna before an audience of zoological peers and made the distinctive creatures part of a wider evolutionary story. It is possible, however, that his intended readers may not have seen Parker's paper in the *Philosophical Transactions*. Many nineteenth-century zoologists found the lavish journal too expensive and the contents too specialized for them to regularly keep up to date.[84] Men of science swapped specially printed versions of their papers amongst their peers. But the limited numbers of these offprints meant Parker could not circulate them to all and sundry. Newspaper clippings became important sources of information and also circulated widely as objects of exchange.[85] It is important to remember that relationships within the scientific community were socially constructed and Parker had already built a significant network of students and colleagues in London before he left for Dunedin.[86]

Part of Parker's decision to emigrate lay in New Zealand's 'strange fauna,' which had been under-investigated when he departed in 1880. He probably thought he could make his mark more easily in a less crowded colonial world. However, he soon regretted the decision and applied for positions in Melbourne in 1886, London in 1890 and Manchester in 1894. In 1890 he

thanked George Macmillan (1855–1936), the publisher, for his ‘kind help in connection with the Univ[ersity] Coll[ege] chair. I should very much like to get it, but fear that 10 years in a remote colony will be considered an insuperable bar to my appointment.’[87] As he feared, he was unsuccessful. He complained to his friend Sidney Harmer in Cambridge: ‘there is no doubt that a man who is foolish enough or enterprising enough to accept a colonial appointment in his youth is shut out from all promotion for the rest of his life in 99 cases out of 100’.[88] A couple of years later, in 1896, in a letter to his publisher George Macmillan, Parker again makes it clear he felt isolated: ‘I am often disposed to wish that I were not the one condemned to sojurn in this “land of d—d realities”.’[89]

It is easy to overplay the effects of intellectual isolation on colonial men of science. Parker wrote the comments quoted above at despairing moments when he had failed to secure promotion in England. As a professor, Parker enjoyed a status in Dunedin that he might not have achieved had he stayed as Huxley’s demonstrator in London. Indeed, had he stayed in the metropole he may have found it equally difficult to get a post. The problem of career advancement was an inevitable consequence of the large cohort of trained biologists in the nineteenth century.[90]

Parker was economical with his research and often made one piece of work appear in several guises. His published record is as opportunistic as the science it recorded. Parker rewrote his kiwi magnum opus as a self-styled ‘semi-popular’ account in the *New Zealand Journal of Science*, established by G.M. Thomson. Despite the *Journal*’s mixture of scientific news and original articles, the subscriptions that funded it flagged and it lasted only four years between 1882 and 1885, being resurrected for a further year in 1890 before folding completely. The *Journal* failed because of the lack of support from Hector, editor of the *Transactions of the New Zealand Institute*, who saw it as direct competition.[91] Thomson himself expressed this view in the last issue, writing ‘most of the societies [in Australia and New Zealand] receive just so much Government aid as enables them to publish their papers, and in this way kill private effort’.[92]

Parker wrote about a dozen of the 250 or so articles that appeared in the *Journal*. His contributions included book reviews, versions of his lectures and opinion pieces. Thomson took pains to ‘exclude all purely technical matter such as descriptions of species ... brief details may be introduced ... [but] the attempt will be made to obtain simple and concise abstracts’.[93] Parker obliged his friend and contributed the two semi-popular accounts of his kiwi research, keeping more technical papers for the *Transactions and Proceedings of the New Zealand Institute* or for London-based journals.

Publishing in the New Zealand *Transactions* meant supporting local science. Parker did not have a paper rejected, but Hector expressed disappointment that Parker chose to publish his full-length paper on the classification and phylogeny of moa in Britain. Under Hector's auspices the New Zealand Institute had brought out 26 annual volumes of *Transactions* and now, said Hector, 'there was a really great opportunity' but 'the first sound effort towards elucidating this great mystery of the past life of New Zealand … would have to go forth to another country to be published'.[94] A short abstract was also published in the *Transactions*, so Hector's complaint was not entirely justified.[95] In any case Parker had an awkward choice: support local science or keep his name in front of a metropolitan audience.

Often the information in the New Zealand *Transactions* only marginally interested northern hemisphere biologists. Small-scale and parochial research monopolized the articles published in the local *Transactions.* For instance, a paper in which Parker described pits on the skulls of some moa that he attributed to the presence of crest feathers eminently suited local publication.[96] It added 'to the knowledge of observed facts relative to New Zealand', being neither too technical, controversial nor too general.[97] An anonymous reviewer in *Nature* described the bulky 1883 annual as 'extremely creditable to the colony': 'The amount of accurate research recorded will, if continued, soon make NZ one of the most completely investigated regions of the world', he optimistically opined.[98]

Despite wide dissemination to similar societies throughout the world, an annual volume proved cumbersome. Inventory-makers required a speedy and prominent publication to announce new species and establish their priority claims. Delays in publication by learned societies were, however, common in the late nineteenth century. One author complained that the Zoological Society of London 'for some unknown reason should allow in some cases as long as two-and-a-half years to elapse before publication of material received'.[99] By these standards the New Zealand *Transactions* did well, but the obscurity of the journal remained problematic.

Parker tried hard to ensure the metropolitan audience of scientific peers did not forget him, and regularly supplied a column for *Nature* under the heading 'Notes from Otago University Museum'. These were mostly rewrites of articles he had already published in the *Transactions.* Like others of his generation he did not see an article in *Nature* as a substitute for having a paper read in full at a learned society. Rather, they used the pages of the weekly magazine as a first stop in the communication of scientific news and ideas, particularly suited to this purpose because of its speed of publication.[100] Speed of publication benefited Parker very little, however, as correspondence

took several weeks to travel from one side of the world to the other. But *Nature's* real value to Parker was that he could keep his name before its knowledgeable readers.[101]

At a broader level, the journals that Parker published in, whether London- or New Zealand-based, provide evidence for the ascendency of the scientific periodical. Because of innovations like peer review the specialized press became the place not only where science became visible but also where its authority and value were safeguarded.[102] Journals were properly only understandable to those initiated through a similar training or a lifetime of dedicated study. In this respect Parker was a member of a fully professionalized zoological elite.[103] By reworking his technical papers of original research, Parker disseminated knowledge to lay audiences that did not consist solely of his scientific peers.

Parker's brand of esoteric science held value in the colonial context because it made New Zealand's distinctive fauna part of a wider evolutionary story. He worked hard, and knew it: 'I think that I have got on well in the Colonies and continued to do a fair amount of work … so many men coming out from Home don't take to Colonial life, or get lazy, or are otherwise a failure.'[104] By anyone's measure, he was no failure, as the ultimate accolade Fellowship of the Royal Society attests. Nonetheless he battled with an acute sense of intellectual isolation.

Parker's networks spread across the globe, and the influence of place, whether London or Dunedin, was personal. The differences he encountered between the resource-rich metropole and far-flung New Zealand were manifestly physical. He operated within the British cultural world. Parker brought to Otago University a research ethos underpinned by a theoretical belief in evolutionary morphology. He contributed to inventory science, largely to satisfy his own curiosity or to clear up ambiguities, but was not content to let that be his only contribution to New Zealand zoology. He managed to complete a substantial body of work in the face of other onerous tasks like the 'endless writing of labels, [and] keeping records'.[105] And a wide variety of scholars appreciated what Huxley described as his 'fundamental scientific work'.[106]

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NOTES

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