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The Moa and the professionalising of New Zealand science

JACOB W. GRUBER

It is appropriate that the Auckland Institute published Archey's valuable memoir on the Moa[1] to inaugurate its Bulletin series. Archey's summing up of the Moa problem a century after the first of the bones were identified and brought to the attention of a scientific audience raised the subject to a new investigative level. His monograph and the more recent work in New Zealand prehistory brought order into the century-long search for the place this giant bird occupied both in natural history and in the history of New Zealand.

With the bringing to London of a femoral fragment in 1839 and its identification by Richard Owen, the Moa phenomenon became the core around which an important segment of science in the Colony crystallised. The continuing discovery of new data and the elaboration of both a body of information and the shifting theories to which it gave rise provide a case history for the growth of science in New Zealand. The main characters are few: Richard Owen and Gideon Mantell in London, Walter Mantell, Julius Haast, James Hector and, in a later phase, F.W. Hutton in the Colony. The nature of their relationships within a scientific community which had still not taken form reveals something of the process by which science occurs. Beyond those personal relationships exist those of institutions and establishments and of the home country and the Colony; and both were coloured with strong tints of a national science. Despite the ideals of a science beyond politics and national interests which so excited the hopes of the early builders of modern science, scientific activity was national in practice and scientific accomplishments contributed to national pride. Although his evolution may have become universal, Darwin was English and led his colleagues to believe that a period of English dominance in the biological sciences had arrived.[2] In the nineteenth century, following the path of empire, science had itself taken on an imperial aspect.

Two manuscript collections in the Alexander Turnbull Library provide an important body of archival data for an understanding of the development of science during New Zealand's earlier decades. These are the large mass of literary material which is the

relict of the life and work of Sir Julius von Haast, dutifully preserved, ordered and interpreted by his son; and the Gideon Mantell Collection, which, almost by chance, found its repository in Wellington.[3] Except for the occasional use of an item here and there from the collection for purposes alien to the life and work of Haast himself, the collection has been virtually ignored by scholars since its acquisition by the Library. While the Mantell Collection contains primarily materials relating to the life and work of Gideon Mantell, the English geologist, it contains also a valuable series of letters from his son Walter Mantell detailing his Moa discoveries during the 1840s and early 1850s. Both collections along with selections from the very important correspondence collection of Richard Owen principally in the General Library of the British Museum (Natural History)[4] and others help to fill out the record of the Moa's entry into the history of science.

By the time of New Zealand's precipitate initiation as a British colony, Richard Owen, Professor Owen as he was to be referred to throughout his professional career, was already a distinguished member of the scientific community. Thirty-six years old, he had been actively engaged for almost a decade in a series of researches which were laying the foundation of a new natural history, a biology which treated organic forms as living systems rather than as compendia of often superficial and always descriptive detail with only the slimmest of theory to serve as a unifying principle. A series of brilliant papers had earned him Dieffenbach's accolade as 'the most eminent comparative anatomist of the age,'[5] one of a small group of those of 'our own race . . . most distinguished or zealous in the advancement of science and the pursuit of human knowledge.'[6] And in receiving the Royal Society's Copley Medal a few years later, he was praised, with Cuvier whose mantle many thought he had inherited, as occupying an eminence in Comparative Anatomy and Palaeontology 'not reached by any other philsophers in modern times.'[7] Owen's research into the anatomy and mode of generation of the marsupials and the monotremes which grew out of his Hunterian work, stimulated a life-long interest in both the fossil and extant fauna of Australia.[8]

Owen's interest was a reflection of a national one and one which imposed a particular responsibility upon the keepers of empire. It was one in which the whole of the British public could involve itself in the discharge of its colonial responsibilities through the anticipated contributions to a universal fund of knowledge. To George Grey, about to start off on his second and ill-fated expedition up the Swan River, Owen, already in the midst of his work with Australian fossils, with the kangaroo and with the problems of generation of the still strange platypus, wrote in expectant en-

Woodcut showing moa and brown kiwis from New Zealand *by Ferdinand von Hochstetter, 1867. Photo neg. 215 MNZ 1/2*

thusiasm: 'There is no field of discovery which interests honest John Bull more than his far away possessions in the Australian Wilderness: so do not spare your notebook. I can see by the allusions in your letter that it will be rich in Natural History.'[9]

If in 1840, Sir William Jackson Hooker, first at Glasgow and then from 1841 as director of the Royal Gardens at Kew, was at the centre of a network of empire-wide botanical collectors; Owen as *de facto* Conservator of the Hunterian Museum played a similar role in zoology. Each saw his responsibilities as related as much to national interests as to those of science. It was in the assumption of such a role for themselves and such a responsibility for the nation that they became 'imperial' scientists. In their correspondence with local collectors they served as professional guides to the amateurs who helped them fill out the record of natural history. They were in effect the conservers of the patrimony of empire; and it was in the context of both empire and nation that they saw their responsibilities.[10]

It was the Moa which turned Owen's scientific interests to New Zealand and which provided him—and science as well—with one of his greatest triumphs in the public arena. It is the Moa too, New Zealand's major contribution to the world of natural history, which both defines and illustrates one major type of the evolving set of relationships between the professional 'at home' and the local collector which was both impediment and stimulus to the development of the practice of science in the colonies.

The story of the discovery of the Moa's remains and Owen's remarkable 'reconstruction' from the small fragment which he acquired has been told many times although with varying detail.[11] The small collection of bones found at Waimate and sent by Rev. William Williams to William Buckland who turned them over to Owen for their description were the data for his first memoir on the type.[12] It was this confirmation of his original definition of the type which Gideon Mantell regarded as an '*experimentum crucis* of the Cuvierian philsophy,' the most 'brilliant example of successful philosophical induction—the felicitous prediction of genius enlightened by profound scientific knowledge.'[13] Having thus laid claim to this excitingly new and hardly anticipated specimen of the fossil history of the Antipodes, which he christened *Dinornis Novae Zealandae*, Owen was not about to abdicate the further responsibilities—and fame—which the elaboration of its natural history promised. Although Owen stretched the interpretive possibilities of Williams's small collection to the limits as Colenso had done with even a smaller number from the same locality,[14] what was now required for a more precise classificatory assignment was a larger sample with more evidence of the geological setting.

Owen's relationships were such that once the need arose, he was able to mobilise friends and associates to search for the additional materials required. When William Martin, newly appointed New Zealand's first Chief Justice, went out to the Colony in April, 1841, he almost certainly carried with him Owen's commission to do what he could to provide additional specimens of the great bird, still known only by a single fragment. Martin, only three years younger than Owen and with a similar provincial background, probably became acquainted with Owen when both were young professionals in practice and in residence in Lincoln's Inn Fields—Owen at the Hunterian Museum of the Royal College of Surgeons with a small medical practice among the lawyers nearby and Martin as a young barrister called to the bar in 1836 and working in chambers from 1838. The letters from 'my esteemed friends', the Martins, particularly those from Mary Martin to Caroline Owen, reflect an intimacy between the young couples which persisted long after Martin's retirement from his New Zealand position.[15] Stationed as he was in the newly established centre of government at Auckland, and with interests much more akin to the spiritual welfare of the Maori than to the world of nature, present or past, Martin was not able to provide any particular information: the Martins wrote more of government gossip and, optimistically, of missionary successes than they did of natural history. Even Bishop Selwyn, who went out as the first Bishop of the Church of England in New Zealand was suggested by an official at Court as a potential supplier of additional Moa remains;[16] but his concern too was more with the saving of Maori souls than with the preservation of Moa bones.

But it was the naturalists, few though they were, upon whom Owen depended the most. He had already in England established a pattern of relationships with local collectors for whom he became the authority in the description and identification of the fossils which formed their collections. It was an easy step to extend that pattern from the provinces to the colonies. Another of Owen's Lincoln's Inn lawyer friends, William Swainson, who sailed out with Martin as first Attorney General of the Colony, suggested that Ernest Dieffenbach might be helpful.[17] Just appointed as naturalist to the New Zealand Company, Dieffenbach went out to the Colony on the *Tory* in 1839 to make a natural history survey and gather the collections which were to have formed the basis of a planned New Zealand Museum.[18] Although he left before the Moa was identified, he carried with him not only Owen's 'kind advice' but also his commission to collect specimens; and upon his return almost certainly discussed with him the result of his survey and its impending publication.[19]

The appointment of George Grey as governor to succeed the hapless Robert FitzRoy, however, promised more substantial gains. As we have seen earlier, Owen's relationship with Grey preceded not only the establishment of the Colony but also, of course, any prevision that he might be in a position at some future time to be of professional assistance there. Although he himself was hardly more than a collector-explorer—and with little success as either—Grey's experience in Australia where, under both Darling and Franklin, the scientific possibilities of that continent had become matters of great official interest, had strengthened a commitment to science and to the obligation of the colonies to do their share in its promotion. The relationship between the two young men—Grey was just 25 and Owen eight years older—was, beyond friendship, a tuitional one. In the midst of working out the fossils which Darwin had brought back from the Beagle voyage, Owen wrote to Grey in Australia of his desiderata:

> Darwin's Zoology has gone on steadily.... I can see by the allusions in your letter that it [Grey's collection] will be rich in Natural History.... When you return and that may be before this reaches you—you will find a large balance of time placed to your account to draw upon for explorations or *corrobories* on any point that may have interested you in physiology.... But our collection of Marsupial Skeletons is too poor to enable me to give any positive information [on their fossil affinities]. Therefore, skulls, & other bones—however roughly prepared would be of particular value to us: no matter how many duplicates: Starve the Dingoes; don't let them crack any bones, save Mutton: box up in saw dust all the odd bones of Marsupials.... Impregnated Uteri of all Marsupials are of great physiological interest but after what you have already achieved in that way I look forward with confidence to some capital materials at your return.[20]

And several years later, just as Grey was assuming his first governorship of New Zealand, Owen wrote again, excited by what seemed to him an emerging pattern of organic change. It was a pattern whose universality the New Zealand birds—both the extinct Moa and living Kiwi—seemed to confirm. 'The entire series of the Mammalian Fossils [from Australia] demonstrates the same kind & degree of correspondence between the extinct pliocene and the existing Fauna of Australia, which is illustrated, in regard to South America, by the Mammalian Fossils of that continent, and, in regard to New Zealand, by the remains of the extinct gigantic struthious birds, at present represented there by the little *Apteryx*. These series of facts are very suggestive and interesting.'[21]

By the early 1840s, Owen was already receiving fossils and information from a variety of sources, the result of both his personal requests and the distribution of a reprint of his 1843 memoir in the *Transactions of the Zoological Society* in which the Williams collection had allowed him to lay out the bare outlines of the Moa

problem with his initial views as to its affinities. William Colenso, although he received the reprint almost a year after its dispatch, sent a long letter in response in which he mentioned his own article in the *Tasmanian Philosophical Journal*, and noted that he had sent all the Dinornis bones in his possession.[22] W.C. Cotton, who had written to Owen early about Williams's early finds at Waimate, promised additional information but, in the end, had to confess his failure to produce anything new.[23] And Percy Earl, collecting on commission for 'some scientific societies in England, had put together a very fine series of Moa bones but with no trace of a skull' so badly desired.[24] Owen took what he could, however varied and fragmentary, always under the impression that the remains were as rare as the initial reports had suggested; and always giving credit to that varied lot of settlers and transients whom he had enlisted in the search.[25]

The fragmentary materials which arrived sporadically for Owen's examination always left something to be desired: initially, as in Earl's collection, there were no fossils of the skull—only limb bones, pelves and vertebrae from whose metrical differences he attempted an initial segregation of taxa. Nor were there good examples of the bones of the feet to compare with the disputed 'bird tracks' identified by Deane and Hitchcock in the Triassic deposits of the Connecticut Valley in America. The data were still too few to provide any but the scantiest of support for the interesting suggestions as to the Moa's form and affinities. The early 1840s were thus a period of initial description and speculation; and although the interest continued with respect to these giant birds of New Zealand's past and although the relationship between fossil Dinornis and living Apteryx seemed to support a theory of a patterned change in the organic world from very large forms in the past to their smaller analogues in the present, still the paucity of the material and the lack of good contextual detail for their geological placement resulted in a decreasing interest as the initial excitement waned in the face of other more striking events in the natural history of Europe and, locally, the increasing difficulties which faced the settlers in these early years of settlement.

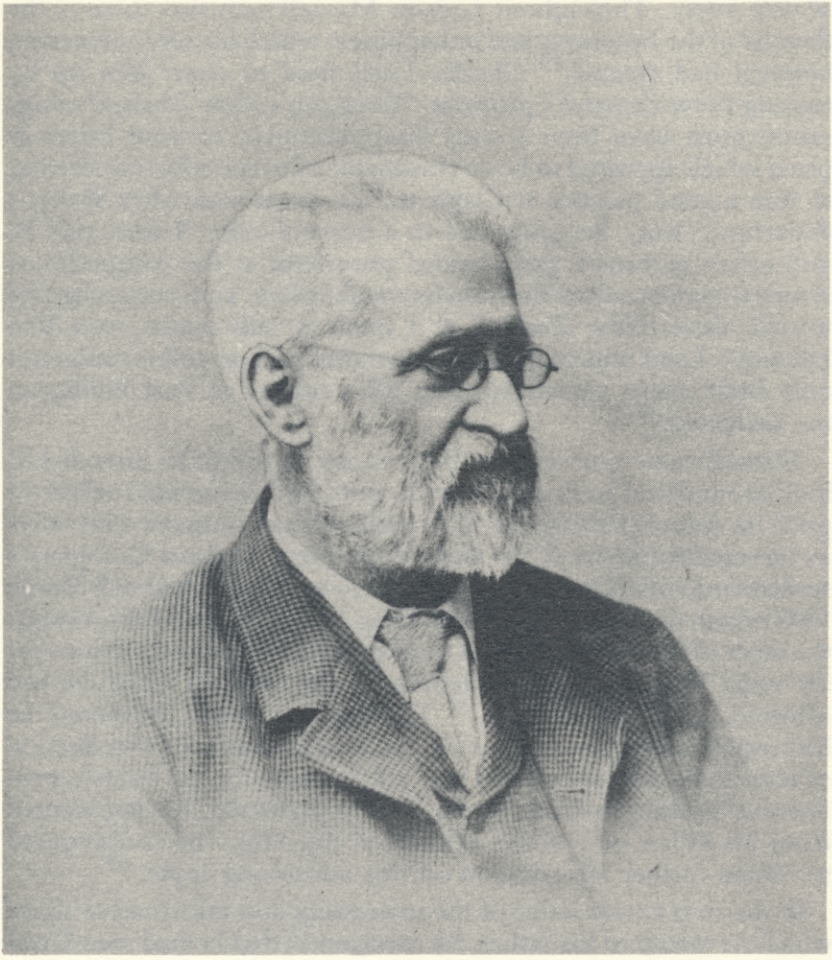
Owen's first two memoirs and the means by which their supporting data were acquired represent a first stage in the development of an evolving set of 'colonial relationships' in the establishment of a New Zealand science. On the one hand those in the Colony, whatever their role—missionary, settler, administrator or traveller—saw themselves as providing specimens without in any way presuming to make scientific judgments as to their nature. They were contributors to science at its most basic level. Moreover, theirs was a 'national' contribution for it was not science alone

which stirred them but a British science. On the other hand, the architects of that structure, a first generation of professionals, gratefully and graciously received the gifts, added them to an expanding store, and built them into the universal systems for which their training and knowledge had presumably prepared them. They, too, despite an international communicative network, practised a 'national' science from which international rivalry was never absent. It is this sense of nationalism that William Clift expressed when he urged the Zoological Society to publish Owen's Dinornis report in full in order to secure 'to this Country, and to the Zoological Society the honour of the first and fullest account of this discovery.... of this unlooked for accession to Ornithology.'[26] Because of the well-defined and accepted roles, there was no sense of exploitation, no conflicts of interest, no room, in fact, for disagreements at the professional, or interpretive, level between supplier and processor. In each of his memoirs, Owen always, and graciously, acknowledged the contributions of those who had so generously provided him with the specimens from whose careful examination he was laying out the systematics of New Zealand's prehistoric avifauna, relating it to more general problems of organic history, and, in the process, validating his own position in the scientific establishment. His 'friendly correspondents through whose kindness' he was indebted for the 'rich material' upon which a good part of his professional reputation rested each willingly made a contribution to Owen's professional skill. He was the master.

* * *

Toward the end of the decade a larger and more representative collection was dispatched to England; its contents were sufficient and sufficiently varied to make it possible to bring some greater order into what had been a kind of speculative chaos. The collection was one that Walter Mantell had assembled at Williams's original site. The uses to which it was put and the persons and personalities involved mark a new stage in the professionalisation of science in New Zealand.

Walter Mantell was one of the first of the immigrants to the colony soon to be. He was not yet twenty when he left England toward the end of 1839. Like so many other settlers he sought to trade the realities of an unsatisfying English future for the promises offered by New Zealand's 'unoccupied' lands. His father was a medical practitioner, first in Lewes and finally in the London suburb of Clapham. His scientific fame rested on his contributions to palaeontology and to popular geology and, in particular, on his



Walter Mantell, ca. 1894. Photo neg. 7984 1/2

discovery of the Iguanadon—the first of the large extinct reptiles of the Mesozoic.[27] He had hoped that his son would take over his practice in medicine and follow him in science. Gideon Mantell was a melancholy and unhappy man. A bitterness approaching paranoia accompanied personal misfortunes and social mishaps. Professionally he was torn by the conflict between the practical demands of medicine and his passion for a science in which he was largely self-taught. He was a member of that transitional generation of semi-professionals who tried to balance their medical practice and their science with a risk to both.[28]

It is probable that it was Gideon's expectations for his son—expectations which Walter knew he could not satisfy—which drove

Walter away. Throughout Gideon Mantell's journal there is the flavour of the bitterness and unhappiness which his son's perceived betrayal had created.[29] Charles Lyell tried to cheer him up by touting New Zealand's promise. 'Your son's New Zealand emigration must have been a cruel disappointment to your hopes & plans which appeared to be so reasonable of eventually transferring to him a good practice at Clapham,' he wrote soon after Walter's departure. 'But,' he continued in a hopeful vein, 'I trust that he will either become a great landed proprietor at the Antipodes or return in time to allow the transfer to take place. I am very sanguine myself about New Zealand & I think it will outdo even Van Diemen's Land which in thirty years after its first colonization not only built steam vessels but sent off a colony to Port Phillip on the mainland.'[30]

Mantell came out with no fixed career in mind; he intended to look around and to find jobs to do until he had decided where to pitch his future. Jerningham Wakefield who accompanied his uncle in the establishment of the first of the New Zealand Company's settlements at Port Nicholson quotes a newspaper article of 9 March 1842 which describes Mantell 'stuffing an old potato-sack amongst the reeds of the dilapidated hut he occupies as Postmaster to prevent the wind from blowing the letters off the table on which he had assorted them for delivery.'[31] Through his father, however, he had received introductions as well as instructions for the collection of natural history specimens and information for his father's professional colleagues back home. And in particular, having learned from his father of Owen's interest in the Moa, 'he endeavoured to obtain further information on this interesting topic.'[32]

In the first extant letter of the interesting and informative series which he wrote to his father, he mentioned that he had seen Governor FitzRoy who had received recommendations from both Sir Roderick Murchison and Charles Darwin, FitzRoy's shipmate and companion during the *Beagle* voyage; but FitzRoy had given him little encouragement for government employment. However Walter promised to do whatever he could to get the information on the natural history of New Zealand on which both had instructed him. Then he added a practical suggestion which would satisfy the collectors back home who were eager to add New Zealand's novelties to their collections: 'Why do not the Marquis of Northampton and some others of the rich 'savans' of England subscribe to fit out an exploration in this interesting country. Say ten of them at from £15 to £20 each per annum for which they would receive Moa's bones and all the other discoveries of their employees.' While he thought that the expenses would be fairly large, perhaps £200, he would take on the task himself even though he

had been told that it would be impossible to penetrate into the interior of the South Island.[33]

Slightly more than two years later he was able to gather the important collection, from the same area which Williams had exploited, which was to stimulate a renewed and systematic attack on the Moa problem. His letters express both the excitement of the discovery and his own fears that what he was able to accomplish was too little to satisfy his father and to raise himself in his estimation. On February 3, 1847, his father's birthday, he began a letter

> I have just returned from my Moa bone hunting expedition and although I am extremely tired having had since daybreak this morning a long, solitary and very fatiguing walk through the forest at the back of the Mountain I cannot go to rest without announcing my arrival on this very appropriate day and wishing you many happy returns of it. I have been sufficiently fortunate. Five "boys" are staggering townward with their scientific burdens, three of whom I left this morning in the bush, and two coming by the coast...

Two months later, he provided more details of his discovery:

> Some days passed before all the boys whom I mentioned above reached New Plymouth with their ossemens fossils during which time constant occupation was found in unpacking and arranging those which came up with me by the mountain road. Then when all had arrived and reached me followed the long task of sorting, rejecting, cataloguing and packing under difficulties....Grey arrived & stayed a week....The 2nd day after his arrival he called at the Hua unexpectedly—after a little talk called for the bones. I shewed him those which I had not packed and as a finale the fragments . . . of the eggshells....The Governor gone, I immediately set to work at packing the remainder of my bones (about 200) and my traps and that done I at once . . . started . . . to search again for bones....At Waingongora [Waingongoro] . . . I only found a few toe bones & claws and a few more fragments of egg shells. My travelling companion Charles Nairn whom the Colonel had engaged as interpreter had been directed by him to collect on the way as he the Colonel had promised some bones to Prof. Owen but has as yet been unable to fulfil his promise. He was as unsuccessful as I. I trust [the case of bones] will reach you in safety and that with the unique egg-shells it should repay you for the attendant expense. As you tell me that such specimens have been much overrated I shall, until I hear from the result, value them only at £25 for which I must draw to repay my expenses on them....[Grey] tells me that from S. Australia he sent a quantity of . . . bones to Prof. Owen which were not acknowledged. Prof. O. by the bye will not receive any of the specimens of Dinornis at present from Col. W. as he has none to send.[34]

The complaint of the lack of personal acknowledgement for the specimens sent was to become an increasingly common one as the collectors came to regard themselves as equal partners in a common scientific enterprise.

The receipt of this unexpected bonanza resolved for the moment

the difficulties which Gideon's 'runaway son' had caused his father. Gideon's journal chronicles an anxiety bordering on hostility at the emigration of the son in whom he had invested so much hope for the attainment of a social success which he himself felt a failure to achieve. Five years after Walter's arrival in the Colony, his father was still confiding his disappointment and despair to his journal. On 29 March 1845 he notes in reaction to a 'very unsatisfactory' letter that Walter 'is evidently doing nothing that can be of any ultimate benefit to himself.' Six months later: 'he is penniless, and without any prospect of profitable employment—all is over.... Will not do to think of it, for I know not how to rescue him;' and following the receipt of another letter: 'Nothing could be more deplorable than his present state.'[35]

The new discovery changed all of that. Having received Walter's long letter on 1 September and before the bones themselves had arrived, Mantell announced in the *Athenaeum* of 27 September 1847 his son's accomplishment and the fact that the whole collection of the more than 700 bones including skulls, eggshells and previously unknown mandibles was on its way to England. Its arrival on 13 December 1847 met, if it did not exceed, all expectations. One senses that transfer of excitement first in Walter's description of his discovery as an offering from son to father and then the father's pride as he reaped something of the benefit of his son's fortune. A week after their arrival, he writes in his journal: 'Walter's collection of Moa's bones has been seen by Prof. Owen who considers it very marvellous.'[36] And with barely concealed excitement he writes to Walter on 18 January 1848: 'Prof. Owen has been hard at work upon them; & last Tuesday read before the Zoological Society descriptions of the skulls & mandibles' the variety of which made possible a more precise classification, to one genus of which he gave the name Notornis 'with the specific name of Mantelli, in honor of your discoveries.'[37] Owen, he writes

> intends to give successive memoirs on all the novelties it contains, as fast as his time will permit. The next is to comprise the egg shells, sterni, etc. We have now sorted the collection & named & appropriated every specimen, except the vertebrae & pelves which will be our next task. Mr. Lyell, the Dean of Westminister (Dr. Buckland) & many other savans have been here to see the collection which is spread out on tables in my dining room; and every one is astonished.... The collection will be far more valuable when properly arranged. I then intend to apply in the first place to the Trustees of the British Museum, and offer the choicest series: for they would not buy the whole, as they have already a large collection of the gigantic species of the Moa. Then I shall apply to other public bodies for other series, for Prof. Owen thinks four or five good series may be made out.... There is so much interest in the collection that I could write a volume upon the subject, but time is not at my command now.... My great desire is to make this collection a means of promoting your interest with

the Governor or Government of New Zealand; I shall do everything in my power to make your discoveries known. I shall give a lecture on the 9th at the London Institution & introduce them there; & also to the Geological Society ; though unfortunately [and here the usual criticism] you have not furnished me with sufficient details of the circumstances under which they were found to enable me to make a good geological story.[38]

For the next few months there were the planned exhibits and papers to attentive audiences. On 2 February 1848, Gideon read his promised paper on the collection before the Geological Society. Since, as he noted with some surprise, the demonstration of the Moa's existence in New Zealand, 'one of the most interesting palaeontological discoveries of our times' had not previously been discussed before the Society, 'I therefore consider myself particularly fortunate in having the opportunity, through the researches of my eldest son, Mr. Walter Mantell, of submitting for the examination of the Fellows of this Society, perhaps the most extraordinary collection of fossil remains of struthious birds that has ever been transmitted to Europe, and which contains the crania and mandibles, egg-shells, and bones, of several genera and species, most, if not all of which have probably long been extinct.'[39] There was 'a full attendance,' he noted. 'Mr. Darwin present, and expressed himself much gratified.' Although the new role which Walter had now assumed in his father's eyes, and that which he was to assume in the colonial establishment, reduced Gideon's anxieties as to the future, it seems only to have intensified his dissatisfaction with the use or abuse of his son's talents. In his letters, Walter, although continuing to inform his father of rich discoveries in the natural history of New Zealand, constantly complains, sometimes pathetically, of his father's continuing criticisms and his lack of praise or even understanding of the difficult conditions under which he was forced to pursue his activities in science and in work.

Gideon's reaction to the large collections which his son was providing and, in fact, the size of the collections themselves and the effort in obtaining them introduce another important element into the relationships which were evolving between the professionals in England and the collectors in the Colony. Natural history possessed a value more practical than its contribution to universal knowledge. Williams has described the transformation of the 'intellectual' into something of an entrepreneur, a purveyor of goods echoing Adam Smith who earlier had said of knowledge that it was now 'purchased, in the manner of shoes and stockings, from those whose business it is to make up and prepare for the market that particular species of goods.'[40] Knowledge, professional knowledge, publicly acknowledged as a restricted resource, in this

view, takes on the aspect of a commercialised commodity whose use has the character of private property which can be sold by its possessor. Medicine, along with the art of the apothecary, had long possessed such a character whose institutionalisation was expressed in the set fees for consultation and a form of licensing via restricted membership in legally recognised societies which themselves were descendants of the medieval guild. With the professionalisation of science during the first half of the nineteenth century, scientific knowledge took on the same character; and those with validated credentials were able to 'sell' their knowledge through an enlarged set of opportunities, especially as popular lecturer and writer to an expanding audience of a literate middle class eager to know the latest conquests of science.

Gideon Mantell quite clearly saw the practical benefits which Walter's collection could provide. 'Do not let the matter rest,' he advised, 'but be on the qui vive for any new facts so as to have your name inseparably connected with the history of these marvellous relics. It will give you consequence in the eyes of those who will be able to advance your interests.... Professor Owen will write to Governor Grey & recommend you to his notice in the strongest terms; & after I have made the subject more known, I hope to get some more powerful influence in your favour;' and in a last minute postscript, he noted that 'Professor Owen has written to Governor Grey recommending you to his especial notice.'[41] Introducing the practical element of self-interest into what had been, on an ideal level at least, the dispassionate search for truth, the interests of science were thus linked with those of career.[42] Nor did Walter let the matter rest. Even before he knew that his collection had reached England but in a continuing state of anxiety at their fate—'I shall be almost broken hearted if the bones do not reach you,' he wrote a year later after sending them[43]—he was busily getting his notes together to provide the details which he knew his father would demand. Once the collection was finally shipped, he wrote euphorically but still anxiously of his discovery: 'the flat was covered with the fragments of bones, of men, moas, seals & what not. As these had been extensively selected from by Rev. R. Taylor . . . I began to dig under the pa . . . and found a great many mostly perfect in shape but so soft that if grasped strongly they would most of them change as if by magic into clay.' The natives, he continued, were so excited and dug so enthusiastically that the bones were not allowed to dry and were so trampled on that most of them were destroyed. 'You can imagine how exasperating it must have been to see specimens destroyed before my eyes, but from your ignorance of the excessive mulishness of the native I fear that some of your indignation will be directed at me; if so

Mantell's discovery of moa remains by J. Brown. Photo neg. 1407 MNZ 1/4

believe me you are in error. All that man could do to dissuade them from turning Orgeologists or Palaeornithists I did, but to no purpose—men, women & children resolutely dashed at the sand . . .'[44]

Charged with the extinguishing of native claims on the South Island,[45] his travels over that still hardly known area made it pos-

sible for Mantell to send a wide range of specimens of geology and natural history back to his father who proudly published them in the interests of both his sone and himself.[46] Still receiving materials from others, some of which came from the South Island and still working through the original Mantell collection which had been bought by the British Museum and made available to him for study and publication, Owen plodded on with memoirs; but to impose some classificatory order now required skeletal material with some *in situ* articulation and geological associations. Again the need was satisfied by Walter Mantell in 1852. The new collection was of major importance. It was enough to satisfy the most avaricious wishes of the father. His excitement, as that with his Waingongoro find six years earlier, virtually breaks through the limits of the paper on which he recorded the details. On 7 January 1853, just after returning to his office in New Munster from a long and difficult trip to the South, he began the last of his letters to his father:

> How I wish you were here . . . to do well what I can only do ill if at all and enjoy yourself in a comparatively anatomical way over the mass of bones which I have brought from my own sunny district.... In a drawer before me 25 or more skulls of all sorts—in paper & grass tops still packed in the rough way which alone was in my power in the remote place where I spent my Xmas.... I have taken possession of the late Registrar's office & made it into a wilderness of dry bones though only a fourth part of the baskets in it are unpacked. Boxes of new tertiary shells—limestone fossils—lignite from newly discovered veins—freshwater fossils—cetacea from limestone—Eggshells in astonishing fragments—are all round the place.

And in series of monthly postscripts to the still unsent letter, he adds descriptive detail of the rich collection which he intended as another birthday present for his father. Finally on 21 March, he sent his grand collection packed up in seven cases. 'Remember,' he concluded, 'should these reach you first they are only the rank & file the bijous are to come.'[47] Although this long report was to be continued, there was no continuation. Four months before the letter was sent, Gideon Mantell had died, this last birthday gift from his son never received.

Mantell's collection was acquired by the British Museum during his long-delayed visit 'back home' in 1856. Although he had lost interest in Moa remains with the death of his father—his major objective was to complain to the Colonial Office, but to no avail, of the abuses in the Government's land acquisition policy in New Zealand—he met on friendly terms the scientists in London whose names had peppered his father's letters. Owen, about to be appointed Superintendent of the Museum's Natural History Depart-

ment, a position specially created for him, returned to the Moa problem and was 'down among the British Museum crypts half buried in old moabones in a kind of rapture from morn to dewy eve.'[48] He met Walter at the British Museum at the beginning of April[49] and a month later wrote to say that he would be at the Museum to 'recommence work.... As soon as I receive the official intimation of my appointment, the noble collection you have brought home will receive my first and, as little interrupted, attention as I can command.'[50] It was from these bones that Owen was able to reconstruct, with the help of 'Mr. Flower, the experienced articulator,' the largest Moa so far recovered, *Dinornis elephantopus*.[51] The brief communications, although continuing the Moa series which he had begun almost fifteen years earlier, added little to the knowledge of the group. In New Zealand, other, more practical, interests prevailed, while attempts to establish some kind of scientific base met with little support.[52] The reconstruction of a giant Moa and its exhibition in the British Museum seemed to have completed the story and thus to have filled out this small niche in the world of natural history.

The ambivalence of the relationship between the Mantells serves as a metaphor for that between England and its newest colony. There is always the grudging support of the dependent child whose imminent failure is a threat to parental hopes and plans. More particularly, the dependence was not only economic and political, but intellectual as well. Not only was the Colony, reluctantly established by a disillusioned Colonial Office, seen as incapable of providing for its own security or defining and exploiting independently its own economic potential, but its few and scattered naturalists, devoid of training or facilities were assigned only the role of collectors whose function it was to supply the raw materials for the home institutions and collections to be processed by the 'savans' who were already emerging as a professionalised class. Owen, for example, circulated copies of his first memoir on the Moa not so much to inform but more to stimulate the search for additional specimens from which he could extend his own synthesis. The Hookers whose own field experiences made them more sympathetic to the local collectors served their professional interests in much the same manner. It was, as I have suggested above, an extension to the new colony of the pattern of professional-amateur relationships which was already well established in England and which evoked only an occasional protest against the lack of adequate acknowledgment. More often the collector felt honored that his specimens were worthy of the attention of the 'Professor'; and the brief published acknowledgement of his contribution was usually a sufficient reward for his efforts. It was a structurally

hierarchial relationship, of course, of patrons and clients, but seen by neither party as exploitative.

Although Gideon Mantell had considered that allowing Owen to describe his son's collection was a 'tribute of respect due for his masterly interpretation of the bones previously transmitted from New Zealand,'[53] it was an indication too of Owen's right by virtue of both his scientific eminence and priority. Such a right of possession, in this case verging on monopoly, could lead to difficulties, specially where, as in the Mantell case, there was real or impending conflict of interests. When Gideon Mantell complained that Owen was delaying too long his analysis and publication on the Moa egg-shells collected by his son and politely suggested that if Owen were otherwise engaged on more important matters, he Gideon would do so, Owen replied immediately but coldly with a clear statement of his professional responsibility and intention: 'Whether you describe or not the portions of egg-shell discovered by your son will in no way affect my intention to do so. I shall of course cite whatever authority has previously treated of the subject. I purpose to render my Monograph on the Extinct Birds of New Zealand as complete as the materials will permit, & to proceed with the egg-shells by the earliest opportunity.'[54] Walter, having received news from his father that Owen apparently was unwilling to allow others to examine his specimens wrote in full awareness of the hierarchical relations which existed and how little he could do to alter them: 'Has not Mr. Cotton a skull of large dimensions? but this perhaps you cannot answer *Owen* to circumstances. I am amused,' he writes with emphasis, 'with the Professor—perhaps 'tis distance lends etc but you cannot think how small he appears at the end of a cool perspective of fourteen thousand miles. As I am still in his debt for his good word and too short-lived good wishes I shall retaliate in my own way when in my power.'[55]

* * *

In New Zealand the 1860s witnessed the beginnings of a localised professional science in response to the recognition that the disciplined knowledge of natural resources—specially gold and coal—was a necessity for economic development, whose value had been demonstrated in England for almost a century. Professionalism on the local level, when it came, brought with it a developing sense of intellectual independence and a localisation of interests and activity which ran parallel to contemporary movements on the political level. It was a part of a groping for a national identity which was to differentiate the second generation of New Zealanders from those who had preceded them and who were still very much a

part of England. The market value of knowledge, especially knowledge in science, as an important component of the professionalisation of the intellectual, affected both the direction in which science developed as well as the relationships among those few who formed the initial cadre of professionals.

Two major figures in the accomplishment of that change were Julius Haast and James Hector, both of whom in their complex and sometimes antagonistic relationship laid the foundation of a New Zealand scientific estbalishment which pulled away from its dependence upon the authority of the mother country.

Julius Haast came to science suddenly, accidentally and with the force of a conversionary experience. Widowed, he left a son to be raised by his wife's family and arrived at Auckland on 21 December 1858, the farthest stop in a decade's wandering as a commercial traveller at the margins of science. The day after his arrival, the Austrian exploration vessel, the *Novara*, arrived bringing with it the expedition's geologist Ferdinand Hochstetter who was to be on loan to the New Zealand government to examine the Drury coalfields. Haast accompanied the brief excursion which went out a week later; and he returned committed to the science he was to serve for the rest of his life. When Hochstetter was asked to stay on to make a geological survey of the Colony, Haast became his assistant for the nine months during which Hochstetter accomplished the first professional geological survey of New Zealand.[56]

Although Haast had had some training in geology and mineralogy, it was as Hochstetter's assistant and companion that he became a geologist with the complex geology of New Zealand as his field laboratory. If, however, it was Hochstetter who schooled him, it was the Nelson Survey[57] that he conducted on Hochstetter's recommendation which made him the field geologist that he rapidly became; and it was his report of the survey which put him in touch with the international community of scientists. Early on Haast was aware of the fact that if he were to make a career as a scientist, his peer group would exist outside of New Zealand. Despite the attempts of a decade, there was still no scientific base in New Zealand; the few collectors there were were engaged almost exclusively in providing specimens for the savants in England—as the case of the Moa amply demonstrates. If knowledge was a product to be marketed, there was no market in New Zealand. It was only the search first for coal and then for gold that stimulated the development of a localised geology; and for that the necessary knowledge had to be imported.[58]

James Hector was another import. Formally trained at the University of Edinburgh, Hector had just completed an arduous but successful participation as geologist and naturalist on the Palliser

Expedition to Western Canada from 1857 to 1860. Upon his return, and only 26, his professional status was acknowledged by acceptance into the British scientific establishment. When the Provincial Council of Otago sought a geologist for the Province, they readily offered him the position on Murchison's recommendation. Both recommendation and nominee were the more readily received because of their Scottish connections. Appointed in 1861, Hector began his initial three-year term on 1 June 1862 under a contract which marks the establishment of the first scientific institution and office in New Zealand.[59]

The nature of the respective responsibilities of the two men as well as their personalities made it inevitable that theirs would be an ambivalent relationship, a mixture of professional cooperation in the search for support for their common commitment to science and a competition for the limited resources and opportunities then available. Haast, the older, was of another generation. He lacked Hector's Britishness as well as the ties with the British scientific establishment which Hector's training and accomplishments had earned him. Haast gave the impression of the enthusiastic amateur whose antecedents were the great traveller-explorers who in the maturing of Romanticism sought universal Truth in the varied details of Nature. Hector was more staid reflecting the new face which a professionalised science had imposed upon its practitioners who, like the clerics whose position the new truth-seekers sought to share, displayed in their sober public stance the responsibilities for a rational explication of Nature, for a *Natural Science*.

At a much more explicit level than that of overall outlook or personality, Hector and Haast played out roles which were defined as they were constrained by the particular structure of New Zealand society and government. Both the plan of settlement and the Colony's topography conspired to emphasise provincial affiliations and allegiances against the sense of a national identity. The individual provinces, each with its coastal urban centre looking away to the world beyond, were separated one from another by the difficulties of overland communication as well as by the distinct nature of their settler populations and goals. Not unlike the American colonies, an initial sense of unity was born only out of the feeling of isolation which distance imposed and the necessary dependence upon the mother country for grudgingly granted economic and military assistance. The centre of social and economic life lay at the provincial level. The earlier history of the Colony sparkles with the effects of the consequent inter-provincial rivalry and conflict. Both Hector and Haast began their professional careers in New Zealand as provincial geologists as each province sought to maximise its hoped-for natural resources. Although—

perhaps because—Hector was soon tapped to assume a national role, the relationship between the two men never fully overcame the diffidence bred of the competition between them for the limited prizes at home and abroad. It was a competition which friends on both sides recognized and sought to minimise.[60]

Their differences were in a sense complementary in the development of a natural science in New Zealand. Hector was, as I have noted, part of the British scientific establishment. One might say that he had been sent out to New Zealand as its representative.[61] In a still small professional community he was known personally and his work respected. In contrast, however, not until Haast was in London for the Colonial Exhibition in 1886, the year before he died, did he meet any of his heroes with whom he had been corresponding for twenty-five years. Moreover, British though he became, his orientation was European as his extensive correspondence indicates. He maintained his close relationship with Hochstetter who translated his works for a Viennese public and became the principal conduit through which his New Zealand data reached continental Europe.[62] Transplanted though he was, he felt himself a New Zealander and, more particularly a man of Canterbury Province. Beyond his commitment to the ideal of a universal science, it was their interests, as well as his own, of course, which he sought to advance. His debt was to science and to New Zealand rather than to England and its scientists.

A few months after Hochstetter's departure, Haast began his correspondence with Owen. Noting that he was about to begin an extensive survey for the provincial government of Canterbury, he offered to make whatever observations Owen might require specially with reference to the Moa. 'I should not have taken the liberty to write to you,' he concluded, 'if I were not sure, that in the interest of Science and also on a Subject on which you have by your eminent investigations thrown so much light, you would be ready to assist me in my researches on the spot.'[63]

For Owen, the promise of further specimens—most of Mantell's last collection lay still undescribed—was not too exciting a prospect. Other concerns and interests had become more pressing: the Darwinian controversy in which he was involved both directly and indirectly; organisational problems at the British Museum where, still, four years after his appointment, his newly created position as Superintendent of the Natural History Collections had still to be defined; his attempt to establish a physically and administratively separate national museum of natural history; and his continued efforts to complete the fossil history of Britain and that of Australia and South Africa. Moreover, having just completed his term as President of the British Association for the Advancement

of Science—the Prince Consort was his successor—he was at the peak of his career as both a scientist and a statesman of science. The Moas which had been so exciting a decade earlier had already been surpassed in both value and interest. By the 1860s, although the occurrence of moa bones still excited interest—commercial and otherwise—they were commonplace. Samuel Butler, for example, in his account of his first year in Canterbury, 1859-1860, wrote lightly of the mystique which surrounded the Moa and of the fruitless search for its living representatives 'on the west coast, that yet unexplored region of forest which may contain sleeping princesses and gold in ton blocks, and all sorts of good things.'[64] The market had become flooded.

Undaunted by the lack of a response to his offer, Haast tried again. Having completed the Nelson Survey and now under contract to Canterbury Province as Provincial Geologist, and thus the first professional scientist in the Colony, Haast sent Owen a copy of the Report.[65] 'As your name is closely connected with the Natural History of New Zealand,' he wrote, 'I did myself the pleasure of naming a mountain range and a river after you, as a small and just tribute to one, whose name is not only known to every scientific man in the civilised world, but is also in the mouth of every Colonist here, even the most uneducated, associating Prof. Owen with Moa bones.' Advising him that he was sending a small miscellaneous collection of natural history specimens like those already sent to correspondents in Europe, he continued with some information which was more apt to whet Owen's scientific appetite: 'From a description given to me by an intelligent settler, I am led to believe that there are skeletons of large & small Saurians in limestone in the banks of the Waitaki, a river wither [sic] I intend going next spring. A pleasing anticipation for one, who has devoted all his energy to Geology and who is only too happy to contribute his mite towards its extension.'[66]

Owen's response was friendly and appreciative. Written almost immediately after the receipt of Haast's letter and report, and undoubtedly stimulated by the offhand reference to fossil reptiles, it suggests what had become a more interesting area of investigation. Although he would 'greatly desire to possess the bones of the "large Kiwi" to which you refer' and although 'the reports, from time to time, in your local newspapers of footprints of still larger birds are exciting [and lead him to hope that he] may still live to see the "last of the Moas" if the species yet lingers in the Mid-Island,' he was intrigued by the fossils from a much more ancient period. 'I received this year from J.H. Hood Esq. of Sydney, N.S.W.,' he wrote, 'some fossil remains of a *Plesiosaurus*, "from the Middle Island of New Zealand." They were in a matrix closely

resembling our *Blue Lias*, but it might be a member of the "Oxfordian" mid—or upper—Oolite. You will, I hope, be able to send us more precise information of this interesting bit of New Zealand palaeontology: perhaps as regards the precise locality.'[67]

Owen's apparent lack of interest in matters relating to the Moa was shared in New Zealand where, while not forgotten, the Moa was pushed aside in favour of the more important search for gold and coal deposits and the means of opening up new grazing lands for the expanding sheep industry. The surveys initiated by the various provinces, Haast's museum at Christchurch, Hector's organisation of the Dunedin Exhibition, the establishment of the Geological Survey and the Colonial Museum in Wellington and the founding of the New Zealand Institute—all during the 1860s—were the direct results of the need on the economic level for organised scientific activity. Together they are the first expressions of a 'made in New Zealand' science, a declaration of intellectual independence. Although New Zealand continued to supply examples of its natural history to the 'imperial' institutions of England as a filial obligation. Hooker's commission to produce a handbook of New Zealand flora in 1862 was, in a way, the last act of uncritical dependence upon the experts 'back home'.[68]

Again, the Moa, the interest in which is a continuing theme in New Zealand science, illustrates the change.

Although he continued to receive occasional Moa fragments from travellers to New Zealand, none was sufficient to arouse again the interest and excitement which had invested Owen's work of the 1840s. In 1864, however, Hector wrote to him to describe 'an unusually perfect skeleton of Moa' which had been found by some gold diggers in Otago province.[69] He was quick to complain to Haast, however, at the lack of response.[70] Although Mantell's large collection fifteen years earlier had promised a rich reward from the South Island, and although Owen was still receiving occasional specimens from settlers and transients in the Colony,[71] Hector's announcement, to be followed very shortly by one of greater importance from Haast, shifted the locus of research to New Zealand. The more highly focussed activity by the two geologist-naturalists, professionals with a local commitment, not only provided a much richer harvest of site-defined collections but also established the South Island as the mother lode of this hitherto valuable resource. But that which was to renew Owen's interest was the rich discoveries in the Glenmark swamp, outside of Christchurch.

In March, 1867, on his way to the Paris Exhibition, Major J. Michael, brought Owen some Dinornis bones which he had found while cutting a drain through the Glenmark swamp north of

Christchurch two years earlier. Together with miscellaneous specimens which had been accumulating for several years, the Glenmark materials made it possible for Owen to extend his classification based on size alone to the creation of a large species which, in a brief report to the Zoological Society, he names *Dinornis maximus*.[72] Haast, however, had already rediscovered the potential of Glenmark. In December 1866, he was invited by the resident partner of Kermode & Co. to visit its sheep run at Glenmark on the Waipara to see the large collection of Moa bones which the drainage channels had exposed. His subsequent excavations there provided an immense collection which filled a 'large American four-horse waggon' out of which his articulator was able to fashion seven complete skeletons. In the more than 1000 moas—more than the total assembled during the previous thirty years—which Haast estimated made up the mass of bones which he and his assistant sorted out, as they attempted 'to solve a veritable jig-saw puzzle in bones, by laying out the collections on the grass between the Provincial Council and the river,' he possessed the currency with which to enrich the natural history collections of New Zealand and, in this case, Canterbury's recently established Museum at Christchurch.[73] The vast quantity of the harvest justified Haast's proprietary relationship to the Moa as well as his sense of his own professional role in its analysis. Ultimately it altered the hierarchical relationship which had existed between him and Owen who for almost thirty years had served as the expert witness on all things relating to the Moa.

Discouraged by what must have seemed to him Owen's lack of interest or, more nationalistically, less moved by the relationship New Zealanders felt to the mother country, Haast not only sought to analyse the material himself but peddled his collections to a wider market. Advised by Hooker,[74] for whom he had been a valued botanical collector, and warned by him of Owen's 'blunders',[75] he sent a collection of bones to W.H. Flower, only recently appointed to Owen's earlier position at the Royal College of Surgeons, in the hopes that after a quick description, Flower would either accept them in exchange for specimens desired by the newly established Canterbury Museum or sell them. Flower was not too sanguine. 'I wish that you had described them yourself as you first proposed, for if they have to go into Professor Owen's hands for description, some delay will necessarily be occasioned before they can be satisfactorily disposed of.'[76] To Owen, describing the circumstances of his great discovery and the possibility of an exchange, he noted that he has 'left the whole transaction to Mr. Flower & I may therefore perhaps suggest that if you cannot exchange specimens for them, that perhaps their value in money is

handed over to Mr. Flower so that this gentleman may buy some collections in return for our embryo Museum which I am most anxious to advance.'[77] Owen apparently exercised his rights and those of what he also considered to be the 'national' museum, for on their receipt at the Hunterian early in July, Flower, after unpacking the box, wrote again with some tact: 'I wrote to Prof. Owen, asking him whether he would like to come here and see them as they lay on the table and select those he wished, but he preferred to have the whole of them at the British Museum, so I packed them up again & sent them to him, including those which you kindly present to this Museum, & which I hope he will return soon.'[78] It was almost a year later, that Flower was able to sell the whole collection for £30 including the £15 which the British Museum had paid for a 'first selection' which was picked out from different lots. With that fund he would buy a series of skeletons of typical animals for Christchurch, thus initiating a process of exchange and purchase which lasted until Haast's death.[79]

So great a treasure transformed the Moa into a valuable colonial resource on the world scientific market. The trade in specimens both with the British Museum and other possible collectors was a continuing theme in the subsequent correspondence with Owen as Haast was unable to conceal the bitterness he felt when his own interests as a scientist and those of his 'embryonic museum' seemed threatened by Owen's authority and the British Museum's assumed imperial role, particularly as he came to see himself less as a collector and more as a scientist and New Zealand something more than a supplier of specimens for London's consumption. Nevertheless, Haast continued to regard Owen as the ultimate arbiter in matters relating to Moa taxonomy and anatomy and he continued to feel a responsibility to provide the British Museum with an adequate representation of the Colony's products. Both he and his sponsors, however, continually expressed bitterness at the inequity of the relationship.

To Owen's list of desiderata from New Zealand, Haast responded with his own request. 'I had an offer for the skeleton of *D. giganteus* of £150, from a gentleman going home & he would have paid me even £200, if only I had asked for it,' he wrote in one case; 'but I thought, & the Trustees of the Museum agreed with me, that you ought to possess it, in order not only to continue your classical publications on the subject, but also as a fine representation . . . in the National collections.... We should like principally not a quantity of objects of Natural History but rare objects which are not easily to be obtained.'[80] Responding to Owen's explanation for delay on the grounds that the British Museum had no duplicates, Haast remained firm. 'I had a full meeting of the Trustees

of this Institution,' he wrote, '& they fully endorsed my views, that unless the British Museum can offer us *adequate* returns for the fine skeleton of *Dinornis maximus* I sent you, & which is worth to us at least £200, you have to consider it as a loan & will be good enough to return it to us as soon as you have described it. I shall not point out the value of such a specimen to the British Museum & I am only astonished that an Institution of such enormous means should not try to obtain such a specimen as I offered for exchange when thousands & thousands are spent on Antiquities, the more so when it is sent by a provincial Museum of a comparatively small Colony.'[81] And a few months later, two years after the original arrangement he was still complaining of the unfairness. To Owen's implied criticism of his dispatch of a collection to Milne-Edwards in Paris,[82] he complained that he had still not received anything from the British Museum while in return for a

> small collection . . . the Paris Museum sent *at once*, on receipt of my letter, a considerable quantity of these desiderata & promised to procure still others, so that the Paris Museum would in this respect do more than your own great National Institution. And this was one of the reasons that our Trustees suggested that the skeleton of Din. maximus in your hands should be sent over to Paris, against which, of course, I rebelled. For more than two years we had been collecting the material for the articulation of that skeleton, which I trusted you would describe & I possess too much loyalty to interfere with it....I once more wish to assure that any day I could get £300 for the skeleton in question so that a *poor* provincial Museum has acted very handsomely towards an Institution which has about hundred times the income of it.[33]

It was, however, with respect to the analysis and interpretation of the Moa materials that Haast found himself in an even more anomalous position. With the mass of material from Glenmark, Christchurch became the centre of Moa research. Though still dependent upon Owen's authority as a comparative anatomist, Haast could assume that his Moa work supported some claim to scientific leadership in the Colony. It was a role which, for both political and personal reasons, did not go unchallenged. As Moa research shifted from the specialists and their museums in the home country to the Colony's small professionalising cadre with their own proprietary interests, it brought into sharper relief the personal and political antagonisms which accompanied the local instutionalisation of scientific activity whose practitioners were, like others of their generation, involved in the difficult search for a national identity.

When Haast, who considered his Philosophical Institute and Museum at Christchurch the real capital of science in New Zealand, sent his first report on the Glenmark Moas to be read at the July, 1868 meeting of the Wellington Philosophical Society, he was

Sir Julius von Haast, 1888, from original oil portrait by A.B. Cambridge. Canterbury Museum. Photo neg. 105426 1/2

laying claim, if not to precedence, at least to parity with the newly established national scientific structure, presided over by Hector, which followed the Government's move to Wellington in 1865.[84]

Although it followed the definition of the problem and the investigative procedures which Owen had defined, Haast's paper—

the first 'local' scientific report on the Moa to have been researched, written, read, and published in New Zealand[85]—is primarily a descriptive account. Haast did little more to advance the Moa question than to arrange his specimens according to the metrically-based classificatory categories which Owen had already created. It was, however, a claim for priority within the still small community of New Zealand scientists. The paper elicited a spirited discussion. While Haast defended his approach and was defended on the grounds that 'he had followed Professor Owen', he was criticised on the same basis by Walter Mantell who noted that 'Dr. Haast showed great courage in endeavouring to determine species upon no other data than . . . the very unsatisfactory test adopted by Professor Owen.' Haast later attributed Mantell's sarcasm to his dislike of Owen[86] but it was at least as much a criticism both personal and professional of Haast himself and a support for Hector who was his main competitor in the development of a New Zealand science.[87]

Yet at the same time, Haast, respectful as he sought to be, found himself at odds with Owen who, in matters of zoology, treated him with some condecension, reserving still to himself the responsibility for the authoritative definition of Moa taxonomy. Although he could compliment Haast on the results of his research, still his role did not permit him to accept easily results when they contradicted his own. Yet, at the source of the data, Haast saw himself competent to do in New Zealand what earlier had been expected from London. To a letter from Haast on 10 March 1873 raising questions about Owen's classification and gently criticising him for editing Haast's conclusions to suit his own, Owen replied with some asperity:

> I am induced to suggest that if my kind friends would trust me to determine other points other than "time" and "place" [i.e. the geological setting] in relation to specimens transmitted, I should be free & wholly responsible for my conclusions. But if *they* add to these "conclusions" their own views on the nature of the specimen, I may err, and do them an injustice by omitting any notice of opinions or conclusions communicated to me. This puts me in a rather perplexing position. I have, to my regret, laid myself open to blame by passing over, without notice, a name or opinion sent with a specimen, which I have believed to be erroneous & I have come to a conclusion always to quote such information, relying on my correspondents loyalty to truth to forgive the exposition of what may seem to be an error.[88]

To suggest to Haast, even in kindness and goodwill, that his knowledge and anatomical skill were too limited or parochial to realise the full potential of his Moa material seemed an affront both to him as a professional and to his institution and Province which he felt were already being treated shabbily in the matter of exchanges.

His response to Owen, coupled with the dispatch of the collection to Paris was, in a very real sense, Haast's declaration of his own intellectual independence in matters associated with the natural history of the Colony. 'I must conclude,' he wrote,

> that you wish me to send you all the specimens unclassified such as you received from Mantell & others; & this brings me to a point, which I wish to clear. You are kind enough to speak of my labours & that I was able to *match* the bones, those described by you: however this is hardly the whole. I with my assistant have articulated from the material at our command & afterwards have matched them with those described by you; but in many cases this was impossible as in many instances you have named only portions of skeletons. All along I have felt that I was in a wrong position, & although my friends urged me on to describe all new species & portions of species named by you, by which many points would be settled, I have refrained from doing so not only as a proof of my respect & veneration for you, but also, feeling that I should never be able to reach the classical standard of your labours. On the other hand "loyalty to truth", as you express yourself, compels me to point out where I think your conclusions are not quite correct. I may in many instances say *I am certain*, having obtained either the specimens in situ or have such material that error is impossible....

And after cataloguing a series of instances where his collection provides a better guide than Owen's laboratory, he concludes:

> Thus I really do not know how to act & as I am willing to send you all our type specimens for description, of course, with the understanding that they are considered as such, of course, I am open to correction, & shall only be too grateful for the sake of truth & my own, if you will do so. But I could not do my duty in this country nor to myself if the results of my own labours would be altogether passed over. After having devoted years of close study to our extinct Avifauna, I owe it to myself that at least portions of such points should not be overlooked. You yourself can hardly expect, who have done *more* than anybody else to propagate the study of Comparative Anatomy, that we in the Colonies do not claim at least a share in the future labours. If a study of your works for many years constitutes a pupil of yours, I can fairly claim to be one of yours, although I have not had the enjoyment 'to sit at your feet' & I shall always try that I shall not be unworthy of such claim....[89]

Though respectful, Haast's letter was an unequivocal—even daring—assertion of his rights as a professional. A few months later, he wrote in a more placating vein[90] to which Owen replied in acknowledgement of the changed relationship: 'I begin to feel that my share in the work of restoration is over. I shall devote the little leisure at my command for application to a favourite old subject, to the completion of my series of memoirs for a compact book.[91] It may serve in some small measure to help in the comparison & determination of the many—doubtless—additions which will have to be made to the extinct avifauna of New Zealand. You stand at the head of my successors in that Work, and merit every honour

& recompense for your share in the Natural History of your fair Islands.'[92]

It was Hector, however, who had the opportunity to observe at first hand how Owen was exploiting the New Zealand material. In London in 1875 on a working leave during which he hoped to acquire by exchange materials for the recently established 'national' Museum in Wellington, he wrote to Mantell that

I have made it clearly understood that none is to have access to them especially *Owen*, who has done a very shabby thing about Cnemiornis[93] and Harpagornis.[94] His paper—in which he only mentions me when he can find fault, and by a juggle of words makes it appear as if he had discovered all about it without aid from my paper, saying indeed that I accord with the conclusions he arrived at!!!—is printed in Q'to reproducing all our drawings without acknowledgment. However I paid him out at the Zool. Soc. the other night when he read a long paper on Harpagornis with profuse illustrations enlarged to full size from the figures in the Trans [*Transactions of the New Zealand Institute*] (Haast's paper). I was called on to speak and praised Owen for the fine memoirs he had produced from time to time on the Dinornis and its allies and said that he must have encountered great difficulties from the imperfect data he received—but that on this occasion he had excelled himself for his memoirs described in detail the anatomy of an extinct bird of which he had never seen a single bone. I asked him publicly if this was true and he had to confess. I then laid the pelvis on the table and said I would lend it so as to give some little additional value to his paper by having one bone of the bird figured from the original. He seemed to take it in good part after a while but I don't trust him not to pay me out....I don't know what the Council of the Zoo. will do, but I told some of them that working naturalists trust to the Plates in the Transactions [of the Zoological Society] as they would to specimens and that if it once gets abroad that they were ever allowed to be mere enlarged reproductions of other drawings without acknowledgment even, the Trans. would be looked on with suspicion.[95]

And a month later after seeing the 'beautiful arrangement' of Mantell's 'old gathering of fossils at Paramoa', he continued with his criticism of Owen's behaviour:

I also saw Owen's Cnemiornis bones. You were right. He had the skull beside him for years (15 they say) but never associated with the leg bone till he saw my paper. Besides, his skull has no lower jaw. He has sprigged his figure of that—of the sternum & some other parts entirely from my paper without acknowledgment. Woodward tells me that they are constantly getting into rows by people coming and asking to see the originals of bones that have been figured by Owen, but which are only constructions from fragments which is all they have to show. Since the meeting at the Zoo. when I got him to admit he had not seen a single bone of *Harpagornis* the Council of the Society have decided not to print the illustrations to his paper so I have done some good.[96]

Owen's version of the affair was quite different. His paper, he explained to Haast,

was simply comments on the series of photographs you kindly sent, corroborative of all your inferences and expressing my sincere admiration of your reconstruction of that noble Raptorial—It happened that it was Dr. Hector's first appearance at one of our meetings. He questioned the evidence of its being a Bird of flight, or, of the requisite power of raptorial flight; but the muscular processes of the humerus being explained by me, in reply, the question was not noticed in the Proceedings & was regarded as non-existent. I hope he was not hurt at my eulogy of your work; but I have only once seen him since, accidentally meeting him on our staircase a few days before his departure for Philadelphia. I much regret to not having had the opportunity of showing him the same friendly attentions as to the worthy Dr. Buller, & as I trust I may be spared to offer to you, if you should revisit Europe & come to our Island.[97]

Whether Owen was unfair or even unethical in his dealings with his 'provincial' colleagues is beside the point. After more than thirty-years dedication to the analysis and classificatory interpretation of the Moa as the remains became available to him in an often haphazard fashion and with a public reputation as the foremost comparative anatomist and vertebrate palaeontologist of the age, it was reasonable for him to assume a competence and a breadth of view which his younger colleagues, specially those in the colonies, did not possess. Throughout his career he had been the professional at the hub of nation and of empire to whom the data flowed and by whom scientific judgments were rendered. He felt that it was his responsibility to exercise the authority that he had earned. What is important is the manner in which what once was accepted behaviour in what was essentially a patron-client relationship was now perceived. Both in England and in New Zealand such authority was increasingly challenged by younger professionals trained in a different method and with a different definition of the investigative problems. Although Owen had played an important role in the professionalisation of his science, as he came to be constrained by the limits of his own role, he lost sight of its ethos.

For the development of a quasi-autonomous scientific base in the Colony, the shift in the nature of the Moa problem was of greater importance. So long as only fragmentary remains were discovered, often without documented contexts, the problem was necessarily a taxonomic one. Moreover it was a problem of this sort which fitted the ideology of the early nineteenth century as well as the constraints imposed by the techniques of comparative anatomy and palaeontology. It was the form and the classificatory affinity of the organism which was the initial desideratum of palaeontology to which, as Cuvier had demonstrated, comparative anatomy could make a critically important contribution. It was to this aspect of the problem that Owen directed his particular talents of dissection and description. The Moa problem, however, had now moved from one of classification to one of natural history

whose pursuit the large *in situ* collections now made practicable. Beyond the construction of classificatory categories whose defining criteria were inevitably arbitrary, there opened the vista of the life of the Moa and its history. The Glenmark bonanza was only the most dramatic of the increasingly extensive discoveries which the resource-inspired surveys and increased construction activity made possible. No longer was the Moa represented by a fragment here or a small clutch of bones there, whose incompleteness and lack of contextual data made conclusions as to its nature more arbitrary and less complete than Owen's authoritative classification appeared. Haast's reconstruction of whole skeletons, the availability of an age series, the discovery of fertilized eggs, the readily available foot-bones which made the question of foot-prints so important a generation earlier a question of fact rather than speculation, the recovery of feathers, and, finally, tight associations of artifacts with Moa remains raised questions of a different sort. The pursuit of these questions was no longer one to be centred in the laboratory of the comparative anatomist with a universalist view but rather in the field. While problems of classification could not be ignored and while the general tenor of Owen's classification served as a foundation upon which the natural history of the Moa was to be built, that building was to be done in New Zealand. The availability of so great a population sample of the Moa and the availability of a cadre, small as it was, of professionalised naturalists such as Haast, Hector, Buller and Hutton, shifted the locus of Moa research to New Zealand; and the familiarity with and the sense of possession of the local materials provided a focus for a New Zealand science which had been lacking.

For the research necessary to explore the new and controversial problems of the natural history of the Moa and, in particular, the effect of the prehistoric human occupation upon its history and eventual extinction, local effort, local interest and local support were necessary. It should come as no surprise, therefore, that from that shift of the Moa problem from England to New Zealand, a substantial foundation of a New Zealand science was laid. Whatever the politics involved in the selection of the New Zealand Commissioner to head up the Colony's exhibit at the Colonial and Indian Exhibition in London in 1886, it was Haast, 'the Moa Man', in his last official act, who brought his Moas to London as a major feature in the display of New Zealand's resources.

* * *

While it goes without saying that this article could not have been written without the aid of others, I would like to express my

appreciation for the wonderful help and support of Mr. J.E. Traue, Chief Librarian of the Alexander Turnbull Library, and his very helpful staff during my stay at the Library on a Fulbright Travel Grant supplemented by a research grant from the Library. My appreciation too to the Fulbright Committees for awarding the grant and specially to the New Zealand partner for attending to all of the New Zealand arrangements. I am also appreciative of the staff at the Hocken Library in Dunedin and the Museum Library in Christchurch for aid in the use of their collections. This work is part of a more extensive project on the life and work of Richard Owen supported by a grant from the National Science Foundation.

REFERENCES

1 Gilbert Archey, 'The Moa: A Study of the Dinorthiformes', *Bull. Auckland Inst.*, 1(1941) 1-119.

2 e.g. T.H. Huxley to J.D. Hooker, September 5 1858: 'I look forward to a great revolution being effected [by the publication of Darwin's *Origin*]. Depend upon it, in natural history, as in everything else, when the English mind fully determines to work a thing out, it will do it better than any other. I firmly believe in the advent of an English epoch in science and art, which will lick the Augustan . . . into fits.' L. Huxley, *Life and Letters of Thomas Henry Huxley*, (London, 1900), I, pp. 160-161.

3 After serving as the extended documentation for his long biography of his father, Haast's son presented the collection to the Turnbull Library. See H.F. von Haast, *The Life and Times of Sir Julius von Haast, Explorer, Geologist, Museum Builder* (Wellington, 1948). The Mantell Collection consisting mainly of the extant correspondence of Gideon Algernon Mantell was eventually deposited in the Turnbull Library after the death of Walter Mantell. See D.R. Dean, 'The Gideon Mantell collection, New Zealand', *Jour. Soc. Bib. Nat. Hist.*, 9 (1979), 121-124; also Michael Hoare, 'Turnbull Library Manuscript Holdings in the History of New Zealand Science: A Review,' *Turnbull Library Record*, 9 (1976) 4-19.

4 About 8000 letters to Richard Owen, selected by C. Davies Sherborn. See Jacob W. Gruber, *A Calendar of the Correspondence of Richard Owen with Introduction*, xerox, Philadelphia, 1985.

5 Ernest Dieffenbach, *Travels in New Zealand*, 2 vols, (London, 1843), I, pp. 230-234.

6 Thomas Livingston Mitchell, *Journal of an Expedition into the Interior of Tropical Australia in Search of a Route from Sydney to Carpentaria*, (London, 1848), p. 438.

7 [Lord Rosse], 'Presidential Address,' *Proceedings of the Royal Society of London*, 6 (1854), 102-113.

8 Sent to the Hunterian, T.L. Mitchell's fossils collected in 1838 initiated Owen's interest in Australia's fossil history as an extension of his continuing work on the generation of the marsupials and monotremes. 'To you', Mitchell wrote to Owen in 1843, 'we look for information as to the real character of the animals to which the bones, teeth & jaws once belonged.' (28 January, 1843, OC:19:242/7).

9 Richard Owen to George Grey, 8 May, 1839, Grey Coll., Auckland Public Library.

10 For a decade and more, there was increasing concern that England lagged behind France and Germany in the pursuit of science; and particularly that little was being done by the Government to exploit effectively the natural history resources of the colonies to enrich the national collections. In the mid-forties, Dr. (later Sir) John Richardson, the head of the Navy's Haslar Museum at Gosport which he was turning into something of a research station, had published in Australia instructions to local collectors who could enrich the Haslar Museum's collections in order to 'render our Museums superior to those of any other country' as well as providing the comparative collections for 'Naval Officers desirous of becoming acquainted with some of the branches of Natural History.' ([John Richardson], 'On Preserving Specimens of Fish, &c., For Exportaton', *Tasmanian Journal of Natural Science*, 2 (1846) 72-73.) Perhaps in response to this concern, the Admiralty commissioned a handbook to guide the collection of scientific information by naval personnel throughout the Empire. Both Hooker and Owen were engaged to write the articles for botany and zoology. (J.F.W. Herschel, editor, *A Manual of Scientific Inquiry: Prepared for the Use of Her Majesty's Navy and Adapted for Travellers in General*, (London, 1849).

11 T. Lindsay Buick, *The Discovery of Dinornis*, (Christchurch, 1936); William Colenso, 'Status quo: a Retrospect . . . concerning the First Finding of the Bones of the Moa in New Zealand', *Transactions of the New Zealand Institute.*, 24 (1891) 468-478; Richard Owen, 'The Earliest Discovered Evidence of Extinct Struthious Birds in New Zealand,' *Geological Magazine* (1873), 478; Richard Taylor, 'An Account of the First Discovery of Moa Remains', *Transactions of the New Zealand Institute.* [read November 6, 1872], 5 (1873) 97-101; Jacob W. Gruber, 'Myth into Reality: The Moa Comes to Life', *Archives of Natural History* (1987), in press.

12 Richard Owen 'On Dinornis, an Extinct Genus of Tridactyle Struthious Birds, with Descriptons of Portions of the Skeleton of Five Species which Formerly Existed in New Zealand, (Part I)' *Transactions of the Zoological Society.*, 3 (1844) 235-276.

13 Gideon Mantell, 'On the Fossil Remains of Birds Collected in Various Parts of New Zealand by Mr. Walter Mantell, of Wellington', *Quarterly Journal of the Geological Society*, 4 (1848) 225-241.

14 William Colenso, 'An Account of some enormous Fossil Bones, of an Unknown Species of the Class Aves, Lately Discovered in New Zealand', *Tasmanian Journal of Natural Science*, 2 (1843) 81-107 [transmitted May, 1842; volume 2 published as a volume in 1846 with the appearance of issue no. 7 containing the paper in 1843].

15 The Martins, particularly Mrs. Martin, continued a correspondence with the Owens throughout their stay in New Zealand. The Sherborn Collection in the British Museum, originally part of the Owen archive, contains 33 letters from 1839 to 1881 but, though long, they contain little of scientific interest.

16 C.A. Murray to William Buckland, 30 January 1843, British Museum Add MSS 42584, fols 17-18.

17 William Swainson to Owen, no date but probably 1839, OC:25:57a/58.

18 Disappointed in the manner in which the New Zealand Company was using the survey which it had commissioned, Dieffenbach had offered to create for himself a *de facto* position of Colonial Naturalist. Although enthusiastically endorsed by Hobson, the proposal was rejected by both Governor Gipps of New South Wales and Lord Russell, the Colonial Secretary on economic

grounds as 'not essential to the establishment of Her Majesty's Government in the colony.' (Gerda Bell, *Ernest Dieffenbach*. (Palmerston North, 1976) pp. 80-83.)

19 Dieffenbach to Owen, 10 October, 1843, OC:10:9-10; also Dieffenbach probably to George Bennett, 10 October, 1839, in which he makes specific reference to his collecting specimens for Owen in jars which Owen had supplied. (Gerda Bell, *op. cit.*, p. 84)

20 Owen to Grey, 8 May 1839, Grey Coll., Auckland Public Library.

21 Owen to Grey, 7 November 1845, Grey Coll. Auckland Public Library.

22 Colenso to Owen, 20 January 1846, OC:8:331.

23 Cotton to Owen, 29 July 1846, OC:RCS.

24 Walter Mantell to Gideon Mantell, 14 September, 1844, Mantell Coll., ATL.

25 Richard Owen, 'On *Dinornis* (Part II), Containing Descriptions of Portions of the Skull, the Sternum and Other Parts of the Skeleton of the Species Previously Determined, with Osteological Evidences of Three Additional Species, and of a new Genus, *Palapteryx', Transactions of the Zoological Society of London*, 3 (1844) 307 [read 23 June 1846].

26 William Clift to Publication Committee of the Zoological Society, 18 October, 1843, OC:Sup 2:18.

27 *The Journal of Gideon Mantell, Surgeon and Geologist*, edited by E. Cecil Curwen, (London 1940); Sidney Spokes, *Gideon Algernon Mantell: Surgeon and Geologist*. (London, 1927); and T.G. Vallance, 'Gideon Mantell (1790-1852): Focus for Study in the History of Geology at the Turnbull Library', in M.E. Hoare and L.G. Bell (eds.) *In Search of New Zealand's Scientific Heritage*, (Wellington, 1984).

28 e.g. John Abernethy: 'it was next to an impossibility to combine an availing pursuit of science, which combines an inquiry into the structure and functions of the whole animal kingdom, with the daily exigencies of an anxious profession.', (George Macilwain, *Memoirs of John Abernethy*, (London 1853), quoted in John Duns', 'The Scientific Works of Professor Owen', *North British Review*, 28 (1858) 317), and Samuel G. Morton (1797-1850), Mantell's slightly younger American contemporary and analogue, wrote to Mantell (e.g. 19 August 1831 and 28 April 1836, Mantell Collection, ATL) describing his own uncertainty and indecision with respect to the conflict between his professional responsibilities as a practising physician which left him 'little time for the fascinating pursuit of Science'; and at the same time, Charles Lyell was suggesting to Mantell that it might be better for him to shift entirely to science (Lyell to Gideon Mantell, 7 February 1838 and 21 October 1843, Mantell Coll, ATL).

29 *Journal of Gideon Mantell*, in which even Walter Mantell's later excisions cannot conceal the bitterness which accompanied his emigration.

30 Lyell to Gideon Mantell, 11 November 1839, Mantell Coll., ATL.

31 E. Jerningham Wakefield, *Adventure in New Zealand*. (an abridgement, edited by Joan Stevens) (Christchurch, 1955) [1845], p. 234.

32 Gideon Mantell, *Quarterly Journal of the Geological Society*, 1848, pp. 226-227.

33 Walter Mantell to Gideon Mantell, 16 September 1844, Mantell Coll., ATL.

34 Walter Mantell to Gideon Mantell, 3 February-7 April 1847, Mantell Coll., ATL. In the event, Grey did send Owen 'a most valuable collection of Dinornii and Palaeopteryx' as well as a 'rich acquisition from Waikawaite on the Middle [South] Island in 1849 from Wakefield' which provided the basis for a paper before the Zoological Society of London which Owen read on 12 November 1850 (Richard Owen, 'On *Dinornis* (Part IV): containing the Restoration of the Feet of that Genus and of *Palapteryx*, with a Description of the Sternum in *Palapteryx* and *Aptornis*', *Transactions of the Zoological Society*, 4 (1850) 1-20.

35 Curwen, *Journal of Gideon Mantell*, pp. 192, 202-203.

36 *Ibid.*, p. 218

37 Richard Owen, 'On Dinornis (Part III): Containing a Description of the Skull and Beak of that Genus, and of the Same Characteristics of Palapteryx, and of Two other Genera of Birds, Notornis and Nestor; Forming Part of an Extensive Series of Ornithic Remains Discovered by Mr. Walter Mantell at Waingongoro, North Island of New Zealand', *Transactions of the Zoological Society of London*, 3 (1848) 345-376, [read 11 January 1848] in which Owen writes of Mantell's kindness in allowing him to examine and report on 'the unrivalled series of these interesting remains, for which science is so much indebted to the exertions of his enterprising son'. See also Owen to Mantell, 1 March, 1848; 8 March 1848; 10 May 1848; 1 August 1848, Mantell Coll., ATL.

38 Gideon Mantell to Walter Mantell, 18 January 1848, Mantell Coll., ATL.

39 G. Mantell, *Quarterly Journal of the Geological Society*, 1848, p. 225.

40 See Raymond Williams, *Culture & Society 1780-1950*, (New York, 1960), p. 38 quoting Adam Smith. While Williams's discussion centres on the changed role of the artist and writer which 'followed inevitably from the institution of commercial publishing' early on in the nineteenth century, the scientist and/or natural historian found himself in the same position as the role of scientist itself came to be institutionalised and commercially viable.

41 Gideon Mantell to Walter Mantell, 18 January 1848, Mantell Coll., ATL

42 See for example John Herschel's eloquent defence of the 'purity' of the pursuit of natural science in his popular *The Study of Natural Philosophy*, (London 1830).

43 Walter Mantell to Gideon Mantell, 24 April 1848, Mantell Coll., ATL.

44 *Ibid.*, 25 June 1847.

45 Along with the more important government position to which it led a couple of years later, it was a job which did not suit him. More sympathetic to Maori interests than most of his fellow settlers, he felt himself party to an unfair exploitation of native innocence and a violation of native rights. 'I must confess that I thoroughly detest this work', he wrote on 16 August 1849. 'I abhor trafficking with the natives especially in such complicated cases as have been given me to arrange'. And a month later, having just completed the complicated arrangements necessary for the establishment of the Canterbury settlement, he wrote 'This will end my native traffic: the anxiety, trouble & what not are too much for any one who can feel them—tis a miserable coexistence of a bush life, all its discomforts with none of its freedom & pleasure. Besides one does not gain an atom of paltry reputation even if successful, for anything but ability to go on haggling with natives; rather than this distinguished position I will leave New Zealand forever'. (*Ibid.*, 12 September 1849).

46 Gideon Mantell, 'Notice of the Remains of the Dinornis and other Birds, and of Fossils and Rock Specimens, Recently Collected by Mr. Walter Mantell in the Middle Island of New Zealand', *Quarterly Journal of Geology*, (1850) 319-342.

47 Walter Mantell to Gideon Mantell, January-March, 1853, Mantell Coll., ATL.

48 P. Searell, 'W.B.D. Mantell (1820-1895)', *New Zealand's Nature Heritage*, (1974) 26.

49 W. Mantell to Owen, [ca 1 April 1856], OC:NH436/7; Owen to W. Mantell, 1 April 1856, Mantell Coll., ATL.

50 Owen to W. Mantell, 6 May 1856, Mantell Coll., ATL.

51 Owen first reported on this collection in papers read before the Zoological Society on 8 April 1856. By the time he had prepared these papers for publication in the *Transactions*, he had completed his examination leading to the

reconstruction of the skeleton of *Dinornis elephantopus* which was a popular exhibit in the British Museum. [Richard Owen, 'On Dinornis (Part VII): Containing a Description of the Bones of the Leg and Foot of Dinornis Elephantopus, Owen', *Transactions of the Zoological Society*, 4 (1858) 149-157; Richard Owen, 'On Dinornis (Part VII): Containing a Description of the Skeleton of Dinornis Elephantopus, Owen', *Transactions of the Zoological Society*, 4 (1858) 159-164.

52 A New Zealand Society was established in 1851 with Mantell as its first secretary to serve as a centre for scientific activity in the Colony. Despite the fact that it was supported, possibly initiated, by Governor Grey, it survived for less than a year to be revived on a much firmer basis as the New Zealand Institute in 1867.

53 Gideon Mantell, 'On the Fossil Remains of Birds . . .' (1848), p. 233.

54 Owen to G. Mantell, 27 November 1848, Mantell Coll., ATL.

55 W. Mantell to G. Mantell, 12 September 1849, Mantell Coll., ATL.

56 This is not, of course, the place either to describe or to assess the role Haast played as the first professional scientist in the Colony. It was such and so varied, however, that his work deserves something more informed and critical than the extended description which his son has provided. Hochstetter's report was published in 1864 in Vienna as one of the reports of the *Novara* expedition. It was almost a century later that New Zealand's foremost geologist made it available in his English translation: Ferdinand von Hochstetter, *Geology of New Zealand*, translated by Charles A. Fleming, (Wellington, 1959).

57 *Report of a Topographical and Geological Exploration of the Western Districts of the Nelson Province, New Zealand, Undertaken for the Provincial Government by Julius Haast Esq.*, (Nelson, 1861). Haast sent a copy of the Report to a long list of scientists and institutions in Europe. It was their reception of the Report which transformed him from an amateur to a professional.

58 Both coal and gold, each in its particular way, were considered mainstays of economic development. As the commissioning of the Hochstetter survey indicated, the search for coal was put on a programmed basis at the end of the 1850s. It was the discovery of gold in Otago in 1861 which promised an economic boom like that which had occurred in Australia and California during the preceding decade.

59 Unfortunately there is no satisfactory biography of Hector. Burnett's 1936 M.A. thesis, *The Life and Work of Sir James Hector*, while giving evidence of having worked a fairly extensive documentary record is little more than a compilation within a chronological frame. Hector's importance in the intellectual history of New Zealand requires a contextual treatment of the role he played. It is interesting to note that in Keith Sinclair's *A History of New Zealand* (1980), Hector receives no mention and only a single passing reference in *The Oxford History of New Zealand* (1981).

60 They were, for instance, competitors for the first FRS to be granted to a New Zealand scientist. Hector received the honour first, in 1866 and Haast a year later after what must have been a considerable discussion within the circle of their London correspondents. Joseph Hooker's letters to Haast illustrate the dilemma in which their London friends found themselves in adjudicating the differences between the two as the rivalry occasionally broke out into a public row.

61 When the Otago position was first announced, Haast had strongly recommended the appointment of an Austrian friend. That recommendation was rejected in favour of Hector whose background and sense of geological problems was British rather than Continental.

62 H. von Haast, *The Life and Times of Sir Julius von Haast*, pp. 269-71.

63 This is the first of Haast's letters to Owen. OC: NH14: 110/12.
64 Samuel Butler, *A First Year in Canterbury Settlement*, edited by A.C. Brassington and P.B. Maling, (Auckland and Hamilton, 1964).
65 see note 57 above.
66 Haast to Owen, 27 August 1861, OC: NH113/14.
67 In the event, an important collection of reptile fossils was lost at sea. Fortunately Haast had made drawings of the more important specimens in the collection which provided Owen with the information he required. On the subject of Haast's role with respect to the fossil saurians of New Zealand, see H. von Haast, 1848, *op. cit.*, pp 576-84; and for a recent popular review of the saurian discoveries, their importance and their fate, see G.R. Stevens, 'Sea Dragons of the Mesozoic', *New Zealand's Nature Heritage*, (1974) pp 84-88, for a notice of which I am indebted to Professor Garry Tee.
68 Hooker's relationship with New Zealand went back to the winter of 1840 when as botanist to the Ross Expedition to the Antarctic, he made a brief stop at Paihia where he met and botanized with both Colenso and Sinclair. His subsequent publication of the results of that stay led to a continuing interest in the Colony and, in the early 1860s to a commission by the New Zealand Government to produce his *Handbook of the New Zealand Flora*. The receipt of Haast's survey report initiated a correspondence and friendship which lasted until Haast's death. To Richard Taylor, one of the several local collectors who supplied him with specimens and information, Hooker wrote on 26 October 1862 that 'The exploration of the Middle Island seems now to go on faster than the Northern & I have a new & excellent correspondent in Mr. Haast, the Government Geologist of Canterbury. He has visited some of the loftiest mountains & added several most remarkable forms to the Flora.' The 65 letters from Hooker to Haast extant in the Haast Collection are a mixture of information, instruction and gossip which testify to a reciprocal relationship in which, as in the case of that between Owen and Haast, there is a mixture of both respect for professional authority and the search for professional independence.
69 Hector to Owen, 15 February 1864, OC: NH15: 6/7, parts of which are quoted in Richard Owen, 'On Dinornis (Part IX): Containing a Descripton of the Skull, Atlas, and Scapulo-coracoid Bone of the Dinornis robustus, Owen', *Transactions of the Zoological Society*, 5 (1866) 337-358.
70 Hector to Haast, 5 August 1864, Haast Coll., ATL.
71 e.g. Philip Bouverie Luxmoore, a settler in Waitaki, in sending 'such bones of Dinornis, as I have up to this time collected', described the places and circumstances of his collecting and noted that he had heard of a place with fossil feathers. (Luxmore to Owen, 4 February 1861, OC: 18: 102/3).
72 Richard Owen, 'On Dinornis (Part XII): Containing a Description of the Femur, Tibia, and Metatarsus of Dinornis maximus, Owen', *Transactions of the Zoological Society*, 6 (1869) 497-500.
73 H. von Haast, 1948, *op. cit.*, 482.
74 Hooker to Haast, 27 May 1867, Haast Coll., ATL.
75 Hooker to Haast, 31 October 1867, Haast Coll., A.T.L. Haast, through Hochstetter, was providing Moa specimens and data to continental investigators as well.
76 Flower to Haast, 12 December 1867, Haast Coll., ATL.
77 Haast to Owen, 5 April 1868, OC: NH14: 115/120.
78 Flower to Haast, 6 July 1868, Haast Coll., ATL.
79 Flower to Haast, 14 May, 1869, Haast Coll., A.T.L.
80 Haast to Owen, 10 January 1872, OC: NH14: 150/153.
81 Haast to Owen, 27 October 1873, OC: NH14: 181/185.

82 Owen to Haast, 16 December 1873, Haast Coll., ATL, in which Owen expresses some concern lest Milne-Edwards 'anticipate me [in the description of Dinornis maximus] as he had done on former occasions'.

83 Haast to Owen, 18 March 1874, OC: NH14: 190/193.

84 Haast was instrumental in the foundation of the Philosophical Institute of Canterbury in 1862 as he was in the formation of the Museum. Although there had been attempts to establish organisations for the promotion of science, literature and art during the preceding 20 years, notably the short-lived New Zealand Society in 1851, and although Wakefield had seen such organisations as important parts of his settlement schemes, Haast's creations were the first of any importance in the Colony. The Wellington Philosophical Institute was organized in anticipation of the government-sanctioned New Zealand Institute which was mandated in 1867 and formally inaugurated in August 1868. For Haast's role in Christchurch, see H. von Haast, 1848, *op. cit.*, pp. 220 ff; and for the New Zealand Institute, see the legislative debates reported in *New Zealand Parliamentary Debates*, 1867, 1:497, 802, 905-6, 949, 1311; and *Transactions of the New Zealand Institute*, 1 (1868) 3-4.

85 Julius Haast, 'On the Measurements of *Dinornis* Bones, Obtained from Excavations in Swamp, Situated at Glenmark on the Property of Messrs. Kermode & Co., up to February 15, 1868,' *Transactions of the New Zealand Institute*, 1 (1868) 21-30. It should be noted, however, that William Colenso published the first local analysis of Moa material a quarter century earlier in the *Tasmanian Journal of Science* which Owen arranged to have republished in London in the *Annals and Magazine of Natural History*.

86 e.g. Haast to Owen, 26 September 1872, OC: NH14: 170/173: 'Hector's evil genius *Mantell* is at the bottom of all. Too indolent or ignorant to write himself, he trades upon his father's name & tries to throw dirt upon every body else who works honestly to advance science in New Zealand. Your illustrious name is like a red rag to Mantell & since that day I was fortunate enough to prove by my researches that your determinations of the Dinornis species were wonderfully correct, he does every thing in his power to throw dirt upon me, but that will recoil against himself.'

87 The personal conflicts within the small circle of scientists working generally in isolation and all competing with one another for slim rewards are an important, though negative, factor in the development of a self-sustaining scientific structure in the Colony. The conflicts in part parallel those between province and central government. Important and critical as they are for an understanding of the maturing of science in the Colony, I can only and barely allude to them leaving them a subject for later treatment.

88 Owen to Haast, 5 August 1873, Haast Coll., ATL.

89 Haast to Owen 27 October 1873, OC: NH14:181/185.

90 Haast to Owen, 14 March 1874, OC: NH14: 190/193.

91 Richard Owen, *Memoirs on the Extinct Wingless Birds of New Zealand, with an Appendix on those of England, Australia, Newfoundland, Mauritius, and Rodriguez*, 2 v. (London, 1879). This was primarily a compilation of the series of memoirs which Owen had published in the *Transactions of the Zoological Society*. By this time, after the death of his wife in 1873 and with the anticipated opening of the new Museum of Natural History in South Kensington, Owen had begun to redefine his role, for in a letter to Professor G.B. Halford (17 October 1877, La Trobe Library, State Lib., Victoria) regarding support for the publication of his work on Australian fossils, he writes that 'it has been written and illustrated expressly with the view of giving an aid indispensable to Colonial-born Palaeontologists, who may, as in the United States, rise to the work of making known the Natural History of their mighty native land.'

92 Owen to Haast, 13 October 1874, Haast Coll., ATL.
93 In 1873, Hector had sent Owen his account of the Cnemiornis specimen and photographs and drawings for transmittal to the Zoological Society.
94 Haast had discovered the *Harpagornis* among the Glenmark fossils and published on it in 1871. Julius Haast, 'Notes on *Harpagornis moorei*, an Extinct Gigantic Bird of Prey . . .,' *Transactions of the New Zealand Institute*, 4 (1871) 192-196.
95 Hector to Mantell, 20 June 1875, transcription in Hocken Library, Dunedin.
96 Hector to Mantell, 3 August 1875, transciption in Hocken Library, Dunedin.
97 Owen to Haast, 5 May 1876, Haast Coll., ATL.

Notes on Contributors

JACOB W. GRUBER is a former professor of anthropology at Temple University, Philadelphia, and has written widely in anthropology and the history of the natural sciences. He has been working on Richard Owen and the development of the natural sciences in nineteenth century England for the past twenty years. Dr Gruber was the Fulbright Research Scholar at the Turnbull in 1984.

Research Notes

The National Library building opened to the public on 1 July 1987. Unfortunately not all of the Turnbull areas were fully operational; some collections were still in storage in other buildings and others could not be unpacked. Despite these shortcomings the main services of the Library were available to readers on the first day. To mark the opening to the public of the Turnbull in its new home after 14 years in temporary accommodation around Wellington, the first day readers were issued with numbered certificates, printed on the Library's hand press by Rachel Salmond, rewarding them for their loyalty and patience by admitting them to membership of the Alexandrian Club.

The publications sales section of the Library has now closed down and in future all Turnbull publications, whether issued by the Library, the Endowment Trust Board or the Friends, will be on sale from the National Library Bookshop on the ground floor of the National Library building on Molesworth Street. The bookshop will handle counter sales, postal orders, and trade orders. The traditional discounts for Friends and for the trade will be maintained. A new catalogue of the Library's wide range of publications is in preparation and will be available later this year from the National Library Bookshop.

A number of the card catalogues maintained by the National Library have been microfilmed and are being made available for sale as microfiche, including the two main Turnbull public catalogues (the New Zealand and Pacific book catalogue, and the catalogue of general books). The Turnbull's users, so long accustomed to the delights of hand written, typed and mimeographed records on cards in those comforting ranges of rimu cabinets, will now have to grapple with the micro revolution which has transformed so many overseas libraries. We are not proposing to follow the example of the New York Public Library and hold a party to farewell the card catalogues, just to shed a tear or two in private.

The catalogue records for the book collections (apart from the special catalogue of early printed books), are now available to users only as microfiche and the cards have gone into storage awaiting a rigorous check of the quality and completeness of the microfiche copies. New microfiche readers have been purchased to provide users with the best quality images possible from the fiche. The main advantage of the new microfiche catalogue records is their wide availability both within the National Library building and in other libraries in New Zealand and overseas.

Penny Griffith, who has been associated with the *Record* since 1977, first as assistant editor and then from 1983 as joint editor, has resigned from the editorial staff on her transfer to the position of Deputy Director in the Reference and Interloan Service of the National Library. Her edito-

rial and typographical skills have made major contributions to the standards of presentation of the *Record* over the past ten years.

Towards the end of June the Library received permission to develop an on-line database which will considerably enhance access to the Oral History Collection. Information about tapes in the Collection will be stored on the National Library's mainframe computer and will be searchable using the BRS software purchased last year. An analysis of user requirements will take place during July, after which the database will be designed in the expectation that it will come into operation early in October. This is the first such database to be sponsored by the Library, and it is hoped that in the future access to other collections can be improved using similar methods.

Grants from the Turnbull Library Research Endowment Fund have been made to Nicholas Boyack who is rewriting his thesis on the social history of New Zealand soldiers in World War I for publication by Allen and Unwin/Port Nicholson Press, and working with Dr J.O.C. Phillips on an edition of World War I soldier's diaries; and to Professor Bernard Smith who will deliver the Turnbull lecture on 15 September and conduct seminars in Wellington on aspects of the early European artists in the Pacific. Bernard Smith is the author of *European Vision and The South Pacific* and the editor of the three volume edition of Captain Cook's artists.

Miss B.J. Kirkpatrick took up her grant from the Research Endowment Fund in June to work on her bibliography of Katherine Mansfield's works, to be published by Oxford University Press in 1988. Miss Kirkpatrick was given special access to the Mansfield collection for a month prior to the Library's official opening on 1 July in order to enable her to meet her publisher's deadline. She is the compiler of bibliographies on Virginia Woolf, E.M. Forster and Edmund Blunden and is a former librarian of the Royal Anthropological Institute in London.

The New Zealand Oral History Archive, which was given temporary office accommodation by the National Library several years ago, has moved into accommodation in the Turnbull's Pictorial Reference Service areas on the second floor of the Molesworth Street building. From the inception of the Archive the Turnbull has acted as the repository for its archival tapes.

During 1988 the one hundreth anniversary of the birth of Katherine Mansfield will be celebrated throughout the world. The Library has a particularly strong collection of materials relating to Mansfield, and would welcome relevant contributions for publication in the *Turnbull Library Record.*

The Library has a subscription to the Research Publications microform edition, Early English Newspapers 1622-1820, and is giving consideration

to purchasing selected runs of Harvester Press's microfilm edition of eighteenth century English provincial newspapers. The advice of researchers and teachers in the early modern period is sought on the selection of appropriate series for purchase. The Turnbull's holdings of early printed books and newspapers on microfilm are available to other libraries on interloan.

The National Library has established a fellowship, to be awarded annually, to mark the opening of the National Library building. The fellowship is intended to encourage scholarly use of the collections of the National Library and the production of publications based on them, and is open to persons resident in New Zealand or overseas. The fellowship is tenable for twelve months and has an annual value of $35,000. Applications close on 30 October 1987 for the inaugural year and thereafter on 1 May each year. Full details are available from the National Librarian, National Library of New Zealand, Private Bag, Wellington.

Request for information: Early references to large lizards

A recent paper by Bauer & Russell *(New Zealand Journal of Zoology*, v.13, 1986, 141-148) describes a new species of gecko with a total length of 622mm and a snout-vent length over half as big again as any previously known in the family. The description is based on a single, mounted specimen in the Musée d' Histoire Naturelle de Marseille in France. The specimen has absolutely no collection data with it and museum records give no indication of how or when it was acquired other than that it was presented in 1902. It was possibly obtained during the period 1833-1869 when the museum records were known to be inadequate. Features of this animal's morphology and osteology place it in the genus *Hoplodactylus* which is so far known only from New Zealand. Furthermore, its general appearance, size and colour closely resemble those of large lizards reported from the northern part of the North Island last century, and the habitat and behaviour ascribed to those large lizards are not inconsistent with them being geckos.

It would be extremely valuable to tie the Marseilles specimen to a New Zealand source and to confirm the nineteenth century reports of large lizards in the North Island. The more obvious published and unpublished material relating to New Zealand zoology has been searched without finding any reference to large lizards being collected. However, it is possible that such a reference exists somewhere among manuscript or published works which deal with the non-zoological aspects of New Zealand's history.

Therefore all those working with such material are asked to report any references to large lizards, especially any that were collected. This request applies particularly to those working with French expeditionary manuscripts as it is conceivable that the specimen may have been carried to Marseilles by a crew member of one of the French exploring vessels.

Addresses for correspondence are: A.H. Whitaker, R.D.1, Motueka, New Zealand, or A.M. Bauer, Museum of Vertebrate Zoology, University of California, Berkeley, Calif. 94720, U.S.A.

Notes on Manuscript Accessions

A SELECTIVE LIST OF ACQUISITIONS, OCTOBER 1986 TO MARCH 1987

Acquisitions of manuscripts are listed selectively in the *Turnbull Library Record* to alert scholars to newly acquired material judged to be of research value. For items marked 'Access subject to sorting' or 'Restricted' the Library would welcome notification that access will be sought, preferably with an indication of a likely date. This will help the staff in establishing priorities for sorting collections. The following list updates the Notes in the *Record* for May 1987. Material produced by the Pacific Manuscripts Bureau and the Australian Joint Copying Project is not listed except for items copied under the latter's Miscellaneous series. New accessions for the Archive of New Zealand Music are listed in *Crescendo*, the bulletin of the International Association of Music Libraries (New Zealand Branch).

BISHOP, REV. JOHN W.G. *A Month's Tour through New Zealand, 1873.* 1v. DONATION: Mrs K.W. Lamb, Christchurch.
Journal of a tour from Auckland to Tauranga and Tarawera during September 1873.

BLACKBURN, HENRY MIDDLETON, 1823-1846. *Journal of H.M. Blackburn, 8th June-5th October 1845.* 1v. DONATION: Principal Registry, Family Division, Somerset House, London, England.
Blackburn served with the 99th Regiment of Foot in the Bay of Islands, 1845-1846. Journal describes his participation in the seige of Ohaeawai Pa. Typed transcript.

COLENSO, WILLIAM, 1811-1899. *Journals, 1836, 1841-1842.* 1 folder. PURCHASE.
Journals cover 9-28 February, 31 May-9 June 1836; 27 February-30 March, 17 September-12 October 1841, including a sketch of the 'Tamil Bell', found by Colenso in 1836 or 1837 in the hands of a group of North Island Maori, and now housed in the National Museum; and a resumé of mission activities, 24 January 1841-30 October 1842.

COLLIER FAMILY. *Papers, 1816-1884.* 3 folders. PURCHASE.
Letters from New Zealand by Charles and Elizabeth Collier, who emigrated to Auckland in 1865. Also papers relating to other family members in England, including legal documents, letters, accounts and marriage certificate.

COLLINS, REV. G.G. *Journal, ca. 1887-1888.* 1v. PURCHASE.
Journal of sojourn through New Zealand giving impressions of people, places, architecture and vegetation. Includes photographs and ephemera.

CORRIGAN, MICHAEL, 1885-1918. *Diaries, 1915-1918.* 240 leaves. DONATION: Mr C.J. Corrigan, U.S.A.
Corrigan sailed with the 4th (Waikato) Mounted Rifles and saw action at Gallipoli, and in France where he was killed in action. Photocopies.

COTTON, WILLIAM CHARLES, 1813-1879. *Letters to Members of his Family, ca. 1841-1847.* 1 microfilm reel. DONATION: Selwyn College, Cambridge, England.
Cotton served as chaplain to Bishop Selwyn at Waimate and St John's College, Auckland.

FISHER FAMILY. *Parliamentary papers, ca. 1893-1925.* 1m. DONATION: Mrs A.E. Broomfield, Hampshire, England.
Chiefly scrapbooks of newspaper clippings on the parliamentary careers of George Fisher, and his son Francis Marion Bates Fisher. Includes George Fisher's memoirs.

HART AOTEAROA. *Records, ca. 1967-1986.* 13.7m. DONATION.
Includes correspondence, subject files, 1981 Springbok Rugby Tour history, newspaper clippings, photographs, financial records, and published material. *Restricted.*

LANDER, MRS D.O. *Letter, 24 March-9 June 1842.* 12p. PURCHASE.
Letter from D.O. Lander at Port Nicholson to his wife in London giving his impressions of the settlement. It includes comments on the Maori, climate, landscape, argiculture and employment prospects.

LAWLOR, PATRICK ANTHONY, 1893-1979. *Further papers, ca. 1888, 1899-1978.* 2.5m PURCHASE.
Chiefly clipping books, research notes and sketches relating to Lawlor's publications.

LOVELOCK, JACK (JOHN EDWARD), 1910-1949. *Personal papers, 1928-1948.* 30v. DONATION: Timaru High School Board.
Diaries and scrapbooks of middle distant runner and Olympic Gold Medallist at the Berlin Games in 1936. Contain notes on training activities, photographs, newspaper clippings and comments on races, as well as his own articles written on sporting events after 1936.

LYON FAMILY. *Papers, 1857-1906.* 20cm. DONATION: Mr P. Bellairs, Hampshire, England.
Chiefly letters of affection from Colonel William Lyon to his wife Sophie, 1865-1875. Lyon served in the campaigns of the 1860s, commanding the Waikato Militia and other troops at Patea, Wanganui, New Plymouth and Opotiki. Also letters from friends and relatives in New Zealand and England; papers relating to Blanche Bellairs (nee Lyon); sketches and photographs.

NEWMAN, WILLIAM, d. 1906. *Letter to William Newman from Joseph Newman, 1 April 1847.* 2p. PURCHASE.
Joseph Newman settled in Auckland in 1841. Letter to his brother in England describing the labour market, wage rates and the cost of produce.

RAKAIA. TERRACE STATION. *Journals, 1883-1887.* 2 microfilm reels. DONATION: Mr & Mrs R.H.B. Foster, Hororata.
Daily entries of work done and visitors to the station.

RIVERSIDE COMMUNITY. *Minute books, 1941-1986.* 19v. DONATION.
The Riverside Community at Upper Moutere was established in 1941. Includes minutes of Community meetings, 1941-1986, and minutes of the Community Women's meetings, 1951-1957.

SMITH, STEPHEN JOHN. *Papers relating to* The Samoa (N.Z.) Expeditionary Force *and the Cook Islands, 1914-1915, ca. 1920s-1930s.* 30cm. DONATION: Mr J. Graham-Smith, Lower Hutt.
Smith, author of *The Samoa (N.Z.) Expeditionary Force* (Wellington, 1924), was Commissioner for the Cook Islands, 1935-1938. The papers include files and photographs for his book, personal correspondence, and photographs from his time in the Cook Islands.

STENBERG, RONALD WALTER, b. 1919. *Papers, 1969-1984.* 23 items. DONATION.
New Zealand-born artist resident in Scotland. Comprise reproductions of sketches, exhibition catalogues, posters, photographs, and newspaper cuttings.

TAYLOR, AILLEEN MARJORIE. *Papers, ca. 1912-1980.* 30cm. DONATION.
Taylor studied art in London before World War One; nursed during both World Wars; and was involved in Girl Guides in Queensland and New Zealand. Includes 68 diaries, 1912-1980; note and sketch books; and personal documents.

THORNTON, DANIEL BATEMAN, 1825-1881. *Outward letters, 1867-1868.* 1 folder. DONATION: Mr M.M. Thornton, Buckinghamshire, England.
The Thornton family emigrated to Auckland in 1856 and started a corn mill. The letters were sent to family members operating a milling business in Russia, and other family and friends in England and Australia. Describe business and politics in Auckland and family matters.

ULSTER ASSOCIATION OF WELLINGTON. *Records, 1956-1986.* 60cm. DONATION: Mr G.W. Pauley, Wellington.
Records include minute book, correspondence, newsletters and register of members.

WATERHOUSE, JOSEPH. *History of Fiji, 1854-1863, 1866?* 2 items. PURCHASE.
History of the first decade of the Christian era in Fiji after the conversion of the Fijians in 1854. Accompanied by a typed transcript of part of history only.

WILSON, GEORGE, b. 1842. *Letters written by William Wilson to George Wilson (his brother) . . . from various places in New Zealand to Fyvie, Scotland, 1862-1871.* 1 folder. DONATION: Mr I.C. Alexander, Birmingham, England.
Letters written from Lyttelton, Auckland, and Hokitika, describe labouring work and conditions, as well as the state of the gold-fields. Includes typed transcripts. All photocopies.

List of Donors 1986/87

Mr G.B. Abel, Mrs N. Aitcheson, Mrs M. Alford, Rewi Alley, A.M.P. (Napier), Ms R. Archibald, Mr A.W. Arculus, Art Gallery of South Australia, Asia Pacific Festival Committee, Mr J.P. Aston, Athletic Rugby Football Club – Oamaru, Mr & Mrs T. Atkinson, Mr A.K. Attwood, Auckland Society of Contemporary Music, Auckland University, Mr D.V. Avery, Mr & Mrs A. Avis.

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National Archives of N.Z., National Library of Australia, National Library of Canada, Ms S. Natusch, Mr H. Needham, Mr B. Neels, New Plymouth City Library, N.Z. Administrative Staff College, N.Z. Ministry of Agriculture & Fisheries, N.Z. Council for Educational Research, N.Z. Department of Lands & Survey, N.Z. Esperanto Association, N.Z. Federation of Business & Professional Womens Club, N.Z. Film Archive, N.Z. Historic Places Trust, N.Z. High Commission (London), N.Z. Institute of Management, N.Z. Institute of Public Administration, N.Z. League of Mothers, N.Z. Library Association, N.Z. Lottery Board, N.Z. Ministry of Defense, N.Z. Ministry of Foreign Affairs, N.Z. Ministry of Works & Development, N.Z. Opera Society, N.Z. Oral History Archive, N.Z. Police Association, N.Z. Post Office, N.Z. Railway & Locomotive Society Inc., N.Z. Trade & Industry Department, Mr I.H. Nichol-

son, Mr J.R. Nicholson, Miss R. Norman, Mrs F. Norrish, Northern Wairoa Museum.

Mr P.J. Oliver, Mr P. Ottino, Mrs G.A. Owen, Oxford University Press.

P & O New Zealand Ltd., Mr R. Pannet, Mr P. Parkinson, Mr J.W. Parnham, Dr M.J. Parsons, Mrs A. Paterson, Mr G.W. Pauley, Mr B. Pearse, Mr A.C. Penney, Mrs M. Petrie-Jones, Porirua Public Library, Sir G. Powles, Miss A.M. Presants, Mr H. Price, Lady Proctor, Public Archives of Canada, Public Trust, Mrs C. Purdue, Mr M.L. Purdy.

Quilters Bookshop, Prof. K. Quinn.

Radio New Zealand, Mr B.J. Ralston, Miss S.M. Rayment, Real Groovy Records, Mrs S. Rees, Mrs D.R. Reeves, Research Office for Rewi Alley's Work (Beijing), Mr D. Retter, Mr P.E. Richardson, Riverside Community (Moutere), Miss K. Robbie, Mrs E. Robertson, Mrs A. Robinson, Mrs N. Robinson, Mr F.D. Robson, Mr D.G. Rogers, Mrs M. Roil, Mr C. Rosen, Mrs M. Ross, Mr E. Rowe, Mr R. Roy, Royal Commission on Historical Manuscripts, Royal Netherlands Embassy, Royal New Zealand Ballet, Mr A.M. Rutherford.

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United Nations International Year of Peace (1986), University of Waikato, Upper Hutt College, Upper Hutt Public Library.

Mr T. Vaughan, Victoria University of Wellington, Volunteer Service Abroad Inc.

Waikato Art Museum, Waimarino Museum Society, Mrs B. Walters, Mr D.A. Walton, Mr B.A. Ward, Ward Canaday Centre, Ms M. Waring, Washington University, Mr B. Watson, Mrs R. Watson, Mrs B. Watters, Dr N. Wattie, Wellington City Art Gallery, Wellington Public Library, Wellington Repertory Theatre Inc., Wellington Returned Services Association, Mrs J.M. Wells, Mr R.E. Wells, Miss A. Westra, Mrs G. White, Mrs K. White, Mr T.R. Wielaeert, Mrs K.C. Williamson, Mr O. Wilson, Mrs R. Wilson, Mrs N. Wilton, Ms L.A. Withers, Mr K. Winter.

Alexander Turnbull Library

Report by the Chief Librarian for the Year 1986/87

The Alexander Turnbull Library is a national research library dedicated to the collection and preservation of the records of human knowledge and endeavour and to the enrichment of those records through the fostering of research and publication. It functions as the Library of national record with responsibility for the accumulation and long-term preservation of the national collection of library materials relating to New Zealand. Other special fields include the Pacific, early printed books, John Milton and the seventeenth century, and the arts of the book.

ACHIEVEMENTS AND ACTIVITIES

While not all goals were achieved, sometimes due to circumstances outside the Library's control, many have been successfully completed.

The major goal was to provide the best possible service to the users despite the disruption caused by the interim shift. Direct services were provided until the end of August in a reference section at the Atlas building, and a temporary reading room at the Castrol building serviced by the Manuscripts staff. The Photograph Section was open to the public until mid-June. Correspondence and telephone enquiry services were maintained according to accessibility of material. The cooperation of Reference & Interloan Services staff in providing access to Turnbull microfilms throughout the year has been appreciated.

Work on the collections in preparation for moving and for different storage arrangements in the new building have been very expensive in terms of labour and materials, but have significantly improved both conservation storage and security control of the collections. The major projects were the interfiling of the various serials sequences (18,000 titles) into one sequence, resequencing the entire manuscripts collection (3 kilometres of shelving), the shelf-checking of the New Zealand and Pacific book collections, separation of the photograph negatives (some 300,000) into glass and film, and the comprehensive checking of the card catalogue prior to microfiching.

Planning for new building services has resulted in the establishment of and recruitment for 13 new positions, staff training, systems planning, and the preparation of guides for users. A close working relationship with Reference & Interloan Services staff has been developed to ensure that enquiries are directed to the most appropriate service points. A similar relationship with Collection Management and NZBN is resulting from the better coordination of effort on automated indexing projects.

A new management structure for the Library was introduced in March 1987. The special collections (Manuscripts and Archives; Pictorial; Newspapers) are grouped under the Keeper of the Collections; a Technical

Services Librarian is responsible for Cataloguing, Acquisitions and Serials; and a Reader Services Librarian for Reference and the Pictorial Reference Service.

Financial support from the community, additional to funds supplied through the National Library, continued at a high level. A bequest from the estate of E.G. Jacoby was received by the Endowment Trust, and sponsorships for publication from the *Woman's Weekly,* F.A.S Macquarie and Francis Allison Symes and Co., Indosuez New Zealand Limited, and the New Zealand Composers Foundation. The Research Endowment Trust received grants from the New Zealand Composers Foundation and the Lilburn Trust for the work of the Archive of New Zealand Music, and grants were also received from the Lottery Board.

The Friends of the Library's centennial fund, created to assist with expensive purchases, now stands at $76,399. The Endowment Trust's assets at the end of the year were $331,038. Income was $51,013 and expenses $42,881 leaving $8,132 available for application in terms of the deed of trust. The Trust spent $1,982 on purchases and $100,286 on publications. The Research Endowment Fund spent $11,119 on grants to research workers and conferences.

The Library was unable to mount any exhibitions of its collections during the year. Items were made available to the Dunedin Public Art Galleries, the Auckland City Art Gallery, and the Robert McDougall Art Gallery for public exhibition.

THE PROMOTION OF RESEARCH AND PUBLICATION

For a research library the most effective and appropriate means of making its resources available to the widest possible audience is through research and publication based on its collections. Grants were made to four scholars (three from overseas) from the Research Endowment Trust.

The Fund was supported by grants from the New Zealand Composers' Foundation, the Ilott Trust, the Trustees of the National Library, the Scientific Research Distribution Committee of the Lottery Board, and the income from three sets of prints. The Endowment Trust made a publication grant for *Na to hoa Aroha: the Correspondence between Sir Apirana Ngata and Sir Peter Buck, 1925–50* edited by M.P.K. Sorrenson from the originals in the Turnbull collections. Publications issued from the Library with the assistance of the Endowment Trust and sponsors were the third volume of Early Eyewitness Accounts (d'Entrecasteaux's visit of 1793 and Duperrey's of 1824), and A Woman's Work, a set of six photographs. The Friends of the Library issued a limited edition print of two botanical drawings by Martha King in association with the Westpac Banking Corporation. The *Friends' Newsletter* and the *Turnbull Library Record* continued publication during the year.

BUILDING THE RESEARCH COLLECTIONS

Donations during the year fell from 346 to 325. The Library continued to receive, under the compulsory deposit provisions of the Copyright Act 1962, a comprehensive collection of materials published in New

Zealand for the national collection of last resort. During the year 22 commercially produced videotapes relating to New Zealand were purchased for the research collections. Notable book purchases included the facsimile of the *Bligh Notebook* published by the National Library of Australia and the Genesis Publications edition of *The Private Journal of Matthew Flinders 1803-1814*, and a hitherto unrecorded pamphlet by C.O. Torlesse *The Canterbury Settlement Topographically Described . . .* 1851. The New Zealand sections of Banks Florilegium began to arrive during the year.

Significant manuscript acquisitions included the papers of Shirley Barton, Betty Curnow, Jack Lovelock and A.A. St. C.M. Murray-Oliver, and the records of Community Volunteers Inc., H.A.R.T. Aotearoa, and the Riverside Community. Eight oral history projects, totalling 200 tapes, were deposited by the New Zealand Oral History Archive. The Archive of New Zealand Music acquired the records of the New Zealand Opera Company and the National Opera of New Zealand, the papers of Alan Heathcote White, and the scrapbooks of J. Maughan Barnett. Five rare nineteenth century French hydrographic charts of the New Zealand coast dated between 1847 and 1868, and a copy of the 1853 version of James Wyld's chart of New Zealand were purchased for the cartographic collections.

Important collections of photographs of World War II, Samoa in the 1920s, and of areas of Wellington were donated to the Photographic Archive, and several early albums were purchased overseas and at auction in New Zealand. Purchases for the drawings and prints collection included 2 sketchbooks by John Gully, an 1860 watercolour of New Plymouth by Edwin Harris, Charles Heaphy's portrait of his fiancee, sketches by Janetta Cookson, Charles Harrisson, Sir Julius von Haast, and three watercolours by Cuthbert Clark done in 1849. Portraits of Oliver Duff, T.A. McCormack, Tony Fomison, Terry Stringer and Peter McLeavey were also purchased. Another twenty photographic portraits by Kenneth Quinn of New Zealanders prominent in cultural and intellectual life were purchased.

CONSERVING THE RESEARCH COLLECTIONS

The Conservation Laboratory has been effectively closed for the past year and been unable to undertake restoration work on the collections. Turnbull staff have accelerated internal conservation programmes to improve the storage and environmental condition of the collections. The condition of the collections has been monitored closely while they have been in interim accommodation and in general high standards have been maintained. On the weekend of 17-18 May water entered the premises of 22 Ghuznee Street and flooded parts of level 4 and 5. Several hundred boxes of books were affected by water but fortunately less than a hundred volumes were damaged. The National Library's wide-ranging conservation review which began in March 1986 was suspended in June 1986 after a great deal of preparatory work had been done by staff. The review is to be reconstituted once the collections have been moved into the new building.

The Library appointed its first Newspaper Librarian in April 1986, and the survey of the location and condition of New Zealand newspapers from 1940 onwards was completed in February 1987.

DR A G BAGNALL, OBE

Graham Bagnall, the fourth Turnbull Librarian (1966-1973), died on 16 April 1986. Tributes were published in the October 1986 issue of the *Turnbull Library Record*.

THE YEAR AHEAD

During 1987/88 the Alexander Turnbull Library will focus its activities on improving public access to the collections and services; developing and preserving the collections; working with other institutions to improve the co-ordination of national research resources; analysing the needs of the library's various research communities; and assisting in promoting the National Library building and its contents as an enrichment of the cultural and intellectual life of New Zealand.

J.E. TRAUE

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Publications, Lectures etc, by the Staff 1986/87

CURTIS, V. 'Katerina Nehua; Endurance Swimmer', *Turnbull Library Record*, 17 (May 1986), 83-86.

DELL, S.E. 'A Screening Expedition', *Information Bulletin, Federation Internationale des Archives du Film*, 32 (September 1986).

———'The Hokinga mai ki Wanganui', *Newsletter, N.Z. Film Archive*, 15 (February 1987).

———'The Maori book or the book in Maori', *New Zealand Libraries*, 45 (March 1987), 98-101.

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GRIFFITH, P.A. '1915 National Library Prototype', *New Zealand Libraries*, 45 (February 1987), 102-3.

———*150 Years of Printing in New Zealand*, compiled and edited by Tolla Williment (review, *PSA Journal*, July/August 1986, 16).

KITCHINGMAN, L. Lecture on the cataloguing of manuscripts and archives; Continuing Education Training Course, Wellington, 19 November 1986.

MCCRACKEN, J. and SULLIVAN, J. 'Women Photographers in the Turnbull Library', *Turnbull Library Record*, 19 (May 1986), 53-60.

MEADS, D. 'The New Zealand Women's History Research Collection 1975-1985', *Turnbull Library Record*, 19 (May 1986) 47-51.

———Defining collection policy and the appraisal of private archives and manuscripts. Panel discussion, Selecting Archives and Manuscripts, A.R.A.N.Z. Conference, Wellington, August 1986.

———Institutional responsibility and access. Panel discussion, Access to Archives: the Custodian's View, A.R.A.N.Z. Conference, Wellington, August 1986.

———Lectures on the arrangement and description of archives, Continuing Education Training Courses, Wellington, 25-28 August and 17-20 November 1986.

MOFFAT, K. and HEENAN, L.D.B.. 'Inter-regional Migration of Older New Zealanders; a Preliminary Exploration of Recent Census Data', *New Zealand Population Review*, 12 (July 1986), 107-126.

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———'Ross Somerville—Music Librarian, National Library of New Zealand', *Crescendo*, 14 (1986), 13-14.

———Sound and Music in the New National Library Building: joint paper with Ross Somerville, I.A.M.L. (NZ) Seminar, N.Z.L.A. Conference, Wellington, 12 February 1987.

PARKINSON, P.G. 'Proposals on Homonyms and Parahomonyms (Art. 64.1 and 64.2)' *Taxon*, 35 (1986), 843-846.

———'Adanson's Generic Names for Plants: Status and Typification', *Taxon*, 36 (1987), 87-97.

———'Adanson's Generic Names for Seed Plants: Validation and Typification. Part 1, Nomina Conservanda and Nomina Conservanda Proposita', *Taxon*, 36 (1987), 81-87.

———'Greater Expectations: Library Service to Lesbians and Gay Men in NZ', *New Zealand Libraries*, 45 (1987), 92-97.

———'Positive about AIDS', *Agenda*, (March 1987), 11.

———Prevention Education and the Gay Community in New Zealand', *in* AIDS Foundation Prevention Education Workshop 5 and 6 November 1986, *Proceedings*, (Auckland, 1986), pp. 1-7.

'A Soldiers Tale', *Pink Triangle*, 61 (Spring 1986), 15.

———AIDS and HIV disease—a medical overview: lecture to Pharmaceutical Society of N.Z. Wellington Branch, March 1987.

———AIDS—A community perspective: lecture to Australian and N.Z. Society for Epidemiological Research in Community Health, Wellington, August 1986.

———and HUGHES, Tony. 'The gay community and the response to AIDS in New Zealand', *New Zealand Medical Journal*, 100 (1987), 77-79.

RALSTON, B.J. 'Chore or Challenge? The Librarian and Family Historians', *New Zealand Libraries*, 45 (December 1986), 78-81.

———The National Register of Archives and Manuscripts in New Zealand: panel discussion, A.R.A.N.Z. Conference, Wellington, August 1986.

———The Not the Turnbull Library Show: address to the Wellington Group, New Zealand Society of Genealogists, 18 August 1986.

RETTER, D.C. Lecture on mixed media in the arrangement and description of archives and manuscripts. Continuing Education Training Courses, Wellington 26 August and 18 November 1986.

———The purposes of microfilming: panel discussion, Microfilming archives, A.R.A.N.Z. Conference, Wellington, August 1986.

SANDERSON, K.M. 'A Cabbage, a Bohemian, and a Genius, or Ordinary Middle-class Folk?, *Turnbull Library Record*, 19 (May 1986), 61-75.

———Review of *Proud to be White* by Angela Ballara, *Archifacts*, 1987/1, 29-30.

———Preservation, Protection, Access; Ownership/Copyright; Where Oral Archives could be located; Cataloguing Existing Material: address given at National Oral History Seminar, Wellington, 20 April 1986.

———Copyright and Archival Collections: address given at A.R.A.N.Z. conference, Wellington, August 1986.

———Lectures on arrangement and description of archival collections, Continuing Education Training Course, Wellington, August and November 1986.

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TRAUE, J.E. 'The Alexander Turnbull Library: Present Trends and Future Policies', *Archifacts*, 1986/2, 37-41.

———'Selection for Preservation: the Message and the Medium', *Libraries After 1984: Proceedings of the LAA/NZLA Conference, Brisbane 1984*, 320-325.

———After the Smith Report; professional prespectives eight years down the track: paper delivered at the A.R.A.N.Z. Conference, Wellington, August 1986.

———Archives and New Zealand historiography: paper delivered at the A.R.A.N.Z. Conference, Wellington, August 1986.

———Austin Graham Bagnall, 1912-1986, Bookman: valedictory address, Old St Paul's, 22 April 1986.

———The Collectors; the fourth Turnbull Winter Lecture 1986; paper delivered at St Andrews on the Terrace, 8 July 1986.

———Tony Murray-Oliver, 1915-1986: valdeictory address, Old St Paul's, 21 November 1986.

———Training needs and career structure: contribution to panel discussion, A.R.A.N.Z. Conference, Wellington, August 1986.

ALEXANDER TURNBULL LIBRARY

Director: Mr J.E. Traue, MA, FNZLA

Deputy Director: Vacant

Systems Librarian: Vacant

Keeper of the Collections: Ms S.E. Dell, BA (HONS), DIP NZLS

Curator of Manuscripts & Archives: Mr P.H. Hughes, MA, DIP NZLS, DIP TCHG
Music Librarian: Miss J. Palmer, MA, DIP NZLS
Editor, National Register of Archives & Manuscripts: Mr B. Ralston, BA, NZLS CERT
First Assistant, Manuscripts and Archives: Mr D.C. Retter, MA, DIP LIBR
Manuscripts & Archives Assistants: Ms E. Kitchingman, BA, DIP LIBR;
Mr T.J. Lovell-Smith, MA; Mr K.L. Stewart, MA, DIP ED
Curator of Pictorial Collections: Ms M.F. Minson, MA, DIP NZLS
Assistant Curator, Drawings & Prints: Ms J.J. Carter, BA, DIP LIB, ALA
Curator of the Photographic Archive: Mr J.P. Sullivan, BA, DIP NZLS
Curator of the Cartographic Collection: Mr K.J. Moffat, BA
*Newspaper Librarian:*Ms N. Frean, MA, DIP LIBR

Reader Services Librarian: Miss J.V. Horncy, BA, DIP NZLS

*Te Kai-tiaki o nga Korero Maori:*Vacant
Pictorial Reference Librarian: Ms J.M. McCracken, NZLA CERT
Pictorial Reference Assistant: Ms H. Cormack, NZLS CERT
Reference Librarian: Mr P. Rainer, MA, DIP NZLS
Reference Assistants: Ms A.W. Brownlie, BA, DIP LIBR;
Mrs P.M. Harries, BA, DIP LIBR; Mr E.J. Hyde, BA, DIP LIBR;
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Acquisitions Assistant: Mr J. Etheridge, BMUS, DIP LIBR
Special Materials Cataloguer: Vacant
Serials Librarian: Mr P.G. Parkinson, BSC, DIP NZLS

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Honorary Curator, Archive of New Zealand Music

Mrs J. E. Paul, BA (HONS) *New Zealand art history and Typographical design*

Mr V. G. Elliott, MA, B. LITT., DIP NZLS *Early printed books*

Mr D. G. Medway, LL.B., FLS *Historical ornithology*

Mr H. C. L. Price, MA, DIP TCHG, MNZSID*Publication*

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THE FRIENDS OF THE TURNBULL LIBRARY

The Society known as the Friends of the Turnbull Library was established in 1939 to promote interest in the Library, to assist in the extension of its collections, and to be a means of interchange of information on all matters of concern to those interested in books generally as well as in the manuscripts, sketches, maps and photographs with other materials which throw light on our history.

The Society carries out its objectives by means of periodic meetings and the production of publications, including the Friends' *Newsletter*.

The annual subscription of $20.00 entitles members to receive the *Turnbull Library Record* free. Members of the Society are also able to purchase Library publications, including those of the Alexander Turnbull Library Endowment Trust, at a discount.

Correspondence and enquiries regarding membership should be addressed to the Secretary, the Friends of the Turnbull Library, P.O. Box 12-186, Wellington North.
