CHAPTER VI

ENTHUSIASM, SYNTHESIS AND ALARM

"In the pioneering stages of Natural Science we recognise the work of collecting, describing and classifying the typical units as a fundamental necessity. The study of their morphology and their history belongs to a more advanced period."

James M. Petrie, 1914.[1]

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1 Brit.Assoc.Adv.Science : Handbook for New South Wales, Syd., 1914, p.281.

CHAPTER VI

ENTHUSIASM, SYNTHESIS AND ALARM.

> "Zoology and Mineralogy, and Astronomy, and Botany, and other sciences, are all very good things, but we have no great opinion of an infantile people being taxed to promote them. An infant community cannot afford to become scientific for the benefit of mankind."
>
> Edward Smith Hall, 1833.[1]

Patronage and Progress

In 1701, the Dutch botanist Joannis Commelijn maintained :

> It is certain, however that this Science, like all Sciences, flourished sometimes more and sometimes less, all in accordance with the inclination of Rulers and the Favour of Government.[2]

It has been shown that these factors indeed largely determined the success of the early botanical investigation of N.S.W., especially at the scientific level, a century and more after Commelijn wrote. We need only recall the combined influence of the directors of the Royal Gardens of Kew and of Sir Joseph Banks and his collectors; or such incidents as the quarrel between Macquarie, the King's Representative, and Cunningham, the King's Botanist; and the appointment of Banks's "more Scientific Governor". in order to appreciate the significance of patronage in scientific progress. Indeed the very discovery of N.S.W. in 1770 was made by officers of a King's ship, in the King's service, on a voyage promoted by the Royal Society[3] of which the King was patron. Even to-day, two centuries later, there are constant laments that the progress of scientific knowledge is often hampered by the lack of research grants -- the twentieth century manifestation of Commelijn's "Favour of Government."

Yet patronage alone has not accounted for the total progress of botanical science in N.S.W., or indeed, elsewhere. This was also demonstrated on the Endeavour voyage, for no one patronised "young Mr. Banks" but himself, and he extended his patronage to "his Suite."[4]

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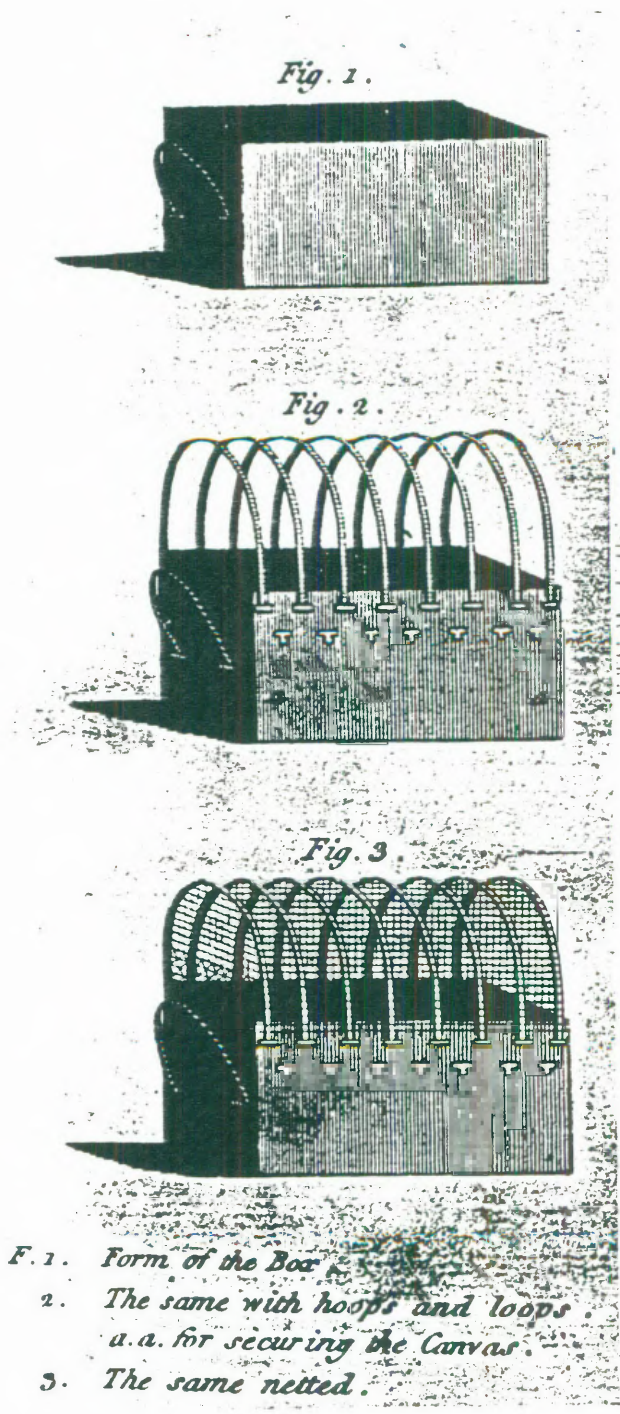
1 Monitor, 20 July 1833.
2 Quoted by H.C.D. de Wit in C.G.G.J. van Steenis (Ed.) : Flora Malesiana, Djakarta, 1954, Vol.4., p.CLVI.
3 more fully, the Royal Society of London for Improving Natural Knowledge.
4 See for example, L.A.Gilbert : "Cook's Companions : 'Young Mr. Banks and Dr. Solander'" in Journal & Proceedings, Armidale and District Historical Society, No.13, 1970, pp.2 et seq.

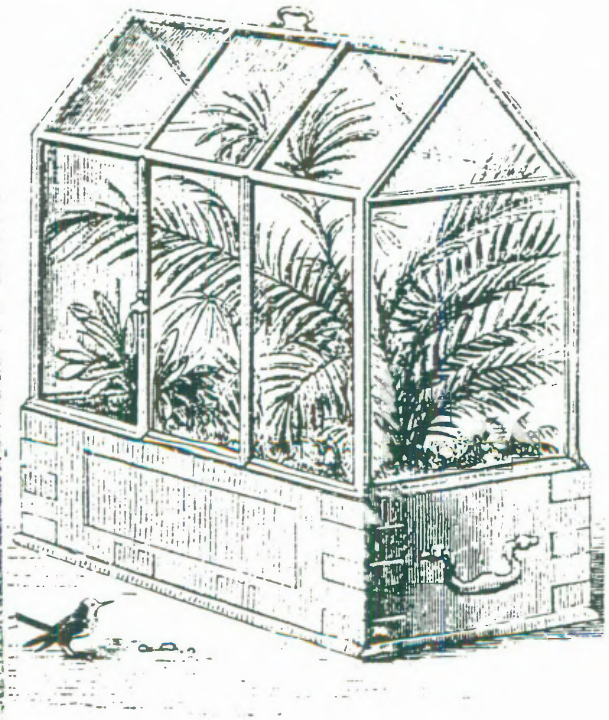
Banks's great influence was due to his tremendous enthusiasm for scientific enquiry. It was the kind of enthusiasm shared by scientists, both amateur and professional, of all ages, whether or not they also shared Banks's fortune or his royal friendships. Enthusiasm costs nothing to generate and requires no patronage to exist, although it may cost dearly in time, money and energy to be expressed in something scientifically acceptable to the world and satisfying to the individual.

Despite Commelijn's contention then, patronage is not enough, though it may well be the means of avoiding destructive frustration. The enthusiasm of individual investigators, amateur and professional, has very largely determined the progress of the botanical investigation of N.S.W. The fact that many were without fortune or patron, and probably remained virtually if not totally unknown to "Rulers and...Government", did not preclude them from making significant contributions to botanical knowledge. Patrons of science were rare in N.S.W. both before and after it ceased to be a penal colony.

Often possessing little scientific equipment, or even scientific knowledge, many botanical enthusiasts ranged the bush with plant-press, vasculum, lens and dissecting knife, with pencil, pen, brush and camera, and with a ready ear for information obtainable from those who worked in the bush with axe and saw. Their enthusiasm was expressed in a variety of ways : in private herbaria of specimens painstakingly collected, pressed, dried, mounted and perhaps classified; in notebooks recording collecting places and ecological observations; in albums of pencil sketches, water-colours and photographs; in voluminous correspondence with fellow enthusiasts; in exhibiting plants and plant materials at public displays; in carrying out experiments with plant materials in improvised laboratories; in cultivating native species; in protesting against official and public indifference to conservation; in publishing in newspaper and learned journal the results of their observations and enquiries; in promoting the establishment of scientific societies, and in making journeys half-way around the world to see the vegetation which other enthusiasts had been extolling since the days of Banks and Solander.

Some of these investigators were transitory visitors, some were permanent residents, most were true amateurs who simply loved botanical enquiry for its own sake; a few were professionals earning a living by





Left: The kind of crude plant transportation boxes which were used during the eighteenth century. They were lashed on the poop deck or, if the captain would allow it, kept in the Great Cabin.

Above: A Wardian case, invented by Nathaniel Ward, a London doctor, early in the nineteenth century, which made possible for the first time reasonably safe and sure plant transportation on long sea voyages.

botanical work, but all were enthusiasts with a zeal which is refreshing to contemplate. In pursuing their various botanical activities, these enthusiasts moved into the bush, often alone, from a surprising diversity of places -- from military establishments and visiting ships, from city mansions and country homesteads, from botanic gardens and plant nurseries, from doctors' rooms, judges' chambers and country parsonages, from the offices of the Surveyor-General, the Sydney Coroner and the Engineer-in-Chief of the N.S.W. Railways, and at least one had known life in convict barracks. It is clear that records of the botanical work of many such people, and even their very names, have been lost, thereby making it historically and scientifically desirable that some account, however incomplete, of those who are known, should be compiled, and their contribution assessed. It will not be possible here to consider in detail more than a few of the hundreds of amateur investigators who must have studied plant life in some way. Our attention will necessarily be restricted to some of the major contributors to botanical knowledge, with occasional glimpses of minor figures to demonstrate the wide range of people concerned with the problem of investigating the vegetative environment. Traditionally an environment which was rather feared, it was only by understanding it in more detail that the fear was dispelled.[5]

"...let them send their travellers..."

Mr. Edward Smith Hall of the Sydney Monitor doubtless knew that the attitude towards colonial science revealed in his characteristically trenchant criticism of the 1834 N.S.W. Estimates was widely shared, even if many were unable to share his often philanthropic motives. To Hall, the £765 or so voted for the Colonial Botanist seemed "a large sum to pay for the service of Botany." Why should "a young Colony" be taxed for the promotion of science"? Mr. Hall was assured of further support when he declared that if science should be developed at the local level, "let our rich men promote it by private subscription", and "if old rich countries want local information in science, let them send their travellers to us."[6] In fact, notwithstanding the vast amount of material sent overseas from the Botanic Gardens, international rivalry and an upsurge of genuine

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5 Some indication of the degree of understanding of the bush which had been reached by the end of the nineteenth century, is provided in the lists of plant uses given in Appendix VIII.

6 Monitor, 20 July 1833.

interest in natural science, had ensured that official expeditions and private travellers had been coming to N.S.W. from "old rich countries" to make botanical and other scientific observations and collections since the days of Phillip. By 1840, the constant succession of British survey and scientific expeditions[7] had been amply supplemented by expeditions from Spain, France, Russia, the United States, Sweden and Austria.[8]

Of these, the most significant botanically were the French expeditions, of which no fewer than nine sailed into N.S.W. waters between 1788 and 1840.[9] The botanical success of such expeditions depended upon :

(i) the skill and knowledge of the personnel specifically appointed as botanists or in more general terms as "naturalists" or "collectors". If the botanical collector had the assistance of an artist, so much the better. On expeditions lacking such personnel, collections were often made by the chaplain, medical officer or by the captain himself.

(ii) the industry and care with which observations and collections were made.

(iii) the range of dried specimens, seeds and living plants collected.

(iv) the care with which the collections were tended until the expedition returned home.

(v) the success with which plants were raised to maturity in institutional or private gardens from seeds and living plants collected during the voyage.

(vi) the extent to which an account of the botanical collections -- especially the description of apparently new species -- was written up and published, preferably with careful illustrations. In the final analysis, the botanical success of any expedition largely depended upon accurately compiled results being made available in published form to the wider scientific fraternity.

As the sojourn of many expeditions was necessarily short, a further point influencing their botanical success was the extent to which offers of hospitality and local information were made. Commanders of foreign expeditions were almost invariably delighted with the reception they received.[10] At the scientific level visitors and residents allowed their common interests to assuage any xenophobic feelings, and many

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7 For a comprehensive list of British expeditions, see G.C. Ingleton : Charting a Continent, Syd., 1944, pp.121 et seq.

8 For a summary of these non-British expeditions, see Appendix XIV.

9 See Appendix XIV.

10 Apart from any spontaneous demonstration of friendship, a warm reception was often assured by despatches from London advising of likely visits and enjoining the Governor to extend appropriate courtesies.

THE RUSSIAN VISIT OF 1820.

ABOVE : Sydney as the Russians saw it in 1820. Note the young Cabbage Palm, Livistona australis on the extreme left, the Burrawang, Macrozamia communis on the extreme right, and the Grass Trees, Xanthorrhoea in the centre foreground.

LEFT : upper : two species of Honeysuckle, Banksia integrifolia and B.ericifolia; lower : the Waratah, Telopea speciosissima.

Plates XVII and XIII of F. Debenham (Ed.) : The Voyage of Captain Bellingshausen to the Antartic Seas, 1819-1821, Lond., 1945. The artist, Paul Mikhailov, of the Imperial Academy of Fine Arts, has shown a good eye for botanical detail. Note the sketches of single flower and the open follicle in the lower sketch.

foreign botanists sailed from Port Jackson with a high regard for the knowledge and generosity of the tiny scientific fraternity of Sydney Town. When Lieut. William Lawson was instructed by Macquarie to accompany Capt. de Freycinet's "pharmacien-botaniste", Charles Gaudichaud-Beaupre and his two companions over the Blue Mountains in 1819, Lawson did so with a good grace that did not go unnoticed :

> Whatever annoyance Mr. Lawson must have felt at leaving his home at so inopportune a time, it in no way lessened his kind assistance. To his skill we owed the greater number of the birds killed along the road; very often too he would dismount to show M. Gaudichaud the plants he thought new to him...[11]

Allan Cunningham made time between voyages on the Mermaid to take the Russians, Stein and Kameyeck, on a similar excursion in March 1820[12], and early in 1824 he provided the French naturalists R.P. Lesson and J.S.C. Dumont D'Urville with "a very detailed note of the stages" to be taken in the Blue Mountains, "and of the rare and interesting plants most particularly to be found there."[13] Cunningham also provided the French with some of his duplicate specimens. At the end of 1825 another French botanist, A.P. Lesson was also provided with specimens, this time by Charles Fraser.[14] Sir John Jamison, the hospitable "Knight of Regentville" was especially happy to offer accommodation to western travellers who shared his interest in natural history.[15]

Late in 1858 an Austrian expedition also experiences the hospitality of the local scientific fraternity, on whose behalf Dr. George Bennett reported :

> we...were highly pleased with all the scientific men on board. Mr. Moore supplied them with a fine collection of our Australian plants & woods & Dr. Mueller sent me a large collection from Melbourne for them; they expressed themselves highly

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11 Quoted in JRAHS, 1938, p.250.

12 See Appendix XIV. Lawson was apparently involved here also. Heward : Biog.Sketch, p.23.

13 JRAHS, 1938, p.264. See also Appendix XIV. There is no evidence to suggest that Cunningham actually accompanied the party, as stated in Lee : Early Explorers, p.516. See also W.G. McMinn : Allan Cunningham, Melb., 1970, p.61.

14 See Appendix XIV.

15 Sir John Jamison (1776-1844) was a physician-squatter with a keen interest in agriculture and horticulture. He made natural history collections and was a foundation member of the Committee of Superintendence of the Aust.Museum and Botanic Garden. (See Chap.V,p.467). Those who enjoyed "Regentville" hospitality included Gaudichaud, Quoy and Pellion in 1819, and Capt. Laplace in 1831.

gratified by their reception in Sydney...[16]

British expeditions also brought notable naturalists to N.S.W., although after Flinders had surveyed most of the coastline with the inimitable Robert Brown, 1801-1803, attention tended to be directed towards the northern and north-western coasts.[17] Three of these later British expeditions however, were of particular scientific importance for they brought to N.S.W. three of the greatest scientists of the century on the voyages which so profoundly influenced their thinking. On 12 January 1836, H.M.S. Beagle, Captain Robert FitzRoy, entered Port Jackson. The ship's naturalist was young Charles Robert Darwin, who within four days was following the footsteps of many natural scientists over the Blue Mountains to Bathurst.[18] Darwin made the Englishman's traditional remarks about the "extreme uniformity of the vegetation",[19] and though he warmed a little to the physical scenery because of his primary interest in geology,[20] the botany of the country made little appeal, until, west of the Mountains, he was relieved to find "the

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16 George Bennett to Wm. J. Hooker, 10 Dec. 1858, Bennett Papers, ML. FM3/237. The Austrian ship Novara, was in Port Jackson from 5 November to 7 December, 1858. See Appendix XIV.

17 e.g. the surveys of HM Cutter Mermaid, Capt. P.P. King (1817-1820); HM Brig Bathurst, Capt. P.P. King, (1821-1822); HMS Beagle, Capt. J.C. Wickham (1837-1841), Capt. J.L. Stokes (1841-1843); HMS Fly, Capt. F.P. Blackwood (1842-1846); HMS Rattlesnake, Capt. Owen Stanley (1846-1850); HMS Herald, Capt. H.M. Denham (various surveys 1863-1861). It should be noted that nearly 1300 specimens from Australia and the Pacific were presented to the British Museum between 1846 and 1854 by their collector, Capt. Sir James Everard Home, F.R.S., of HMS North Star. Capt. J.L. Wickham presented 170 Aust. plants in 1842 (The History of the Collections contained in the Natural History Departments of the British Museum, Vol.I, Lond., 1904 : (Botany Section by George Murray) pp.88, 156, 191).

18 Darwin : Naturalist's Voyage, pp.441 et seq.

19 See Chapter III, pp.150, 151, 161, 164.

20 "I was led to attend closely to several branches of natural history, and thus my powers of observation were improved, though they were always fairly developed. The investigation of the geology of all places visited was far more important, as reasoning here comes into play..." F. Darwin (Ed.) : The Life and Letters of Charles Darwin, N.Y., 1898, I, p.52.

SHIPS' NATURALISTS

CHARLES ROBERT DARWIN (1809-1882) visited Sydney in HMS Beagle in 1836, and made a journey over the Blue Mountains to Bathurst. He has been described as "one of the last, and probably the greatest, of the eclectic scientists who preceded the age of professional specialization."[21] He was not, however, greatly impressed by the vegetation he saw during his only excursion in N.S.W., although he did collect some specimens.

Photo : from the collection of the Linnean Society of London, reproduced in M. Allan : The Hookers of Kew.

JOSEPH DALTON HOOKER (1817-1911) visited Sydney in 1841 as assistant surgeon to HMS Erebus and botanist to Capt. J.C. Ross's Antartic Expedition. In 1865 he succeeded his father, Sir William Jackson Hooker, as Director of Kew Gardens, and thereby maintained the family influence upon colonial botany. The Introductory Essay to his Flora of Tasmania (1859) remains one of the classics of Australian botanical literature.

Photo : from the collection of the Linnean Society of London, reproduced in M. Allan : The Hookers of Kew.

21 Aust.Dict.Biog., I, p.287.

vegetation much improved."[22] At this time Darwin apparently had little knowledge or appreciation of the Australian flora. Such botanical impressions as he formed during his visit to N.S.W. made their impact on the scientific world only when they were incorporated into his great thesis of natural selection which projected so much scientific and theological thought into the melting pot twenty-three years later.[23]

Of greater botanical significance was the visit of Captain Sir James Clark Ross's **Antarctic** Expedition to Port Jackson between 14 July and 5 August 1841. "Assistant Surgeon to the Erebus and...'Botanist to the expedition'"[24] was Joseph Dalton Hooker,[25] the most competent botanist to visit N.S.W. since Brown, and soon to be considered for the directorship of Sydney's Botanic Garden during the crisis of 1844-1845.[26] Inspired by the account of the Beagle's voyage written by his friend Charles Darwin,[27] young Joseph Hooker would have had a frustrating time indeed during the three extremely wet weeks spent in Sydney but for some excursions through the magnificent Elizabeth Bay garden of his father's friend, Alexander McLeay.[28]

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22 Chiefly, it seems because the trees now "stood farther apart" in the "parkland" formation so dear to the Englishman's heart, especially if, as in Darwin's case, he wished to gallop after kangaroos !

23 The Beagle sailed from Port Jackson on 30 Jan. 1836. For Darwin's association with Australia, see Gavin de Beer in G.W. Leeper (Ed.) : The Evolution of Living Organisms, Melb., 1962, pp.15-22.

24 M. Allan : The Hookers of Kew, Lond., 1967, p.100.

25 J.D. Hooker (1817-1911) son of Sir Wm. J. Hooker (1785-1865) who was Director of Kew Gardens, 1841-1865. J.D. Hooker succeeded his father as Director, 1865-1885. Both described many Australian plants in their remarkable output of botanical publications. Father and son dominated British and Colonial botany for the greater part of the 19th century, and Sir Joseph was still working (on species of balsam) four days before his death on 10 Dec.1911 at the age of 94. See Mea Allan: op.cit., passim.

26 See Chapter V, pp.482 et seq. also L. Huxley : Life and Letters of Sir Joseph Dalton Hooker, Lond., 1918, I, p.177 and M. Allan : op.cit., p.153.

27 L. Huxley : op.cit., I, p.66.

28 L. Huxley : op.cit., I, pp.122-123; Allen : op.cit., p.126. Despite the rain, Hooker did make some collecting excursions, during one of which "it began to pour with rain, and with a load of plants we were glad to take refuge in the New York Tavern" before continuing "through the town and government domain for the ships, splashing through the mud at every step, while the little urchins compared us carrying our grass trees to Moses among the bulrushes." L. Huxley : op.cit., I, p.121.

BOTANICAL JUDGE AND BOTANICAL PROFESSOR

BARRON FIELD (1786-1846) was Judge of the Supreme Court of N.S.W., 1817-1824. He found some relief from legal and social disputes in literary works and in natural history. He was one of the most active members of the short-lived Philosophical Society of Australasia, and botanists owe much to the papers preserved in his Geographic Memoirs on New South Wales. Mr. Commissioner Bigge considered that Field lacked "that degree of temper and deliberation necessary to conduct the judicial business of such a Colony", but natural historians have reason to be grateful for some of his non-judicial work.

Photo : Mitchell Library.

WILLIAM HENRY HARVEY (1811-1866) Professor of Botany at Dublin, visited Australia in 1855 principally to study marine algae. His chief contribution to Australian botany was Phycologia Australica; or, A History of Australian Seaweeds. He also collected phanerogams during his excursions in N.S.W.

Photo : from F.W. Oliver (Ed.) : Makers of British Botany, Lond., 1913.

During a series of surveys, HMS Rattlesnake, Captain Owen Stanley, made several visits to Port Jackson between July 1847 and March 1850. The vessel carried three naturalists -- the assistant surgeon, Thomas Henry Huxley,[29] John MacGillivray[30] and James Fowler Wilcox.[31] Owen Stanley himself was also interested in natural science and had some talent as a botanical artist.[32] At Sydney, Huxley

> determined to go into what society was to be had and see if I could not pick up a friend or two among the multitude of the empty and frivolous.[33]

He was markedly successful. William Sharp Macleay of Elizabeth Bay, a leader in Sydney's scientific fraternity became one friend; Philip Gidley King[34] became another who made possible Huxley's excursion to Raymond Terrace, Port Stephens and Stroud;[35] a third friend was one of the few confessed admirers of Australian trees, Henrietta Heathorn, whom Huxley shortly married.[36]

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29 T.H. Huxley (1825-1895) physician and biologist, became "Darwin's bulldog" during the controversy following the publication of Origin of Species in 1859. He is said to have coined the term "agnosticism". See Julian Huxley (Ed.) : T.H. Huxley's Diary of the Voyage of HMS Rattlesnake, Lond., 1935 and Aust.Dict.Biog., I, pp.577-578.

30 John MacGillivray (1821-1867), the chronicler of the expedition, had served as Lord Derby's naturalist on HMS Fly. He lived in Grafton, 1864-1866, working with his old shipmate, J.F. Wilcox in the commercial collection and preparation of natural history specimens. See Aust. Dict.Biog., 2, pp.167-168; Daily Examiner (Grafton) 1 May 1948, and J. MacGillivray : Narrative of the Voyage of HMS Rattlesnake...Lond., 1852 (to which was appended Wm. Carron's largely botanical "Account of Mr. E.B. Kennedy's Expedition...", previously published in 1849.)

31 J.F. Wilcox (1823-1881) served on HMS Blazer before joining HMS Rattlesnake. He settled in South Grafton in 1857 and amassed a vast natural history collection. Wilcox joined MacGillivray in a short-lived partnership dealing in natural history specimens and he exhibited material in the Paris and Melbourne Exhibitions of 1866 and 1867. Bentham acknowledged Wilcox's specimens 119 times in Flora Australiensis (See Appendix I). See also Proc.Roy.Soc.NSW, 1908, pp.129-130; Daily Examiner, 1 May 1948.

32 Capt. Owen Stanley, F.R.S., F.R.A.S., died suddenly in Sydney on 13 March 1850 shortly after returning from the third cruise. His botanical art is noticed later. In 1848, the Rattlesnake escorted Edmund Kennedy's expedition to Rockingham Bay where the ship's naturalists joined Kennedy's botanist, William Carron, and naturalist, William S. Wall, on some excursions.

33 T.H. Huxley to his sister, 21 Mar.1848, L. Huxley : Life and Letters of Thomas Henry Huxley, Lond., 1900, I, p.37.

34 Son of Phillip Parker King and soon to be manager of the A.A. Company; brother of Rev. Robert Lethbridge King.

35 Huxley stayed at Tahlee House, the A.A. Company's headquarters at Carrington, Port Stephens. The building still (1970) stands.

36 See Chapter III, p.156. See also J.Huxley : T.H. Huxley's Diary, pp.82 et seq.

A number of other "travellers" were not "sent" with official expeditions. Some came as freelance observers or as commercial collectors often with prior knowledge of the plants they wished to find in the bush.[37] Others experienced the attraction of an unusual vegetation only after they had arrived on some other mission. Only a few of the many botanically-inclined visitors to N.S.W. between 1810 and 1880 can be considered here.

During his term as judge of the Supreme Court of N.S.W., 1817-1824, Barron Field[38] found relief from personal and legal disputes in botanical, zoological and literary activities, and sometimes he contrived to combine all three.[39] His accounts of visits to the Blue Mountains and Bathurst in 1822, and to Illawarra and the Shoalhaven in 1823, abound with botanical references,[40] and some of his plant specimens are preserved at Oxford.[41] Field's signal contribution to N.S.W. botany was the preparation of his Geographical Memoirs on New South Wales (1825), a work which preserved and publicised some of the earliest papers read to the short-lived Philosophical Society of Australasia, as well as two

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37 This point, made in Thesis I, long applied. Those who had some botanical interest in Britain became familiar with Australian plants in private gardens and nurseries, and at Kew, where "the Australian house" held, for example, "the Banksias, the Telopea speciosissima, the acacias and many of the genus Epacris" (Townsend : Rambles, p.35). Note also Sarah Lee : Adventures in Australia; or, the Wanderings of Captain Spencer in the Bush and the Wilds...Lond., 1851, p.iv : "Some idea of the beauty of the principal Australian plants may be conceived, by visiting the Royal Gardens at Kew, where they bloom during the spring, in rich luxuriance." For an indication of the popularity of Aust. plants in England during the earlier part of the 19th century, see, for example, Conrad Loddiges & Sons : The Botanical Cabinet...Vols. I-XX, Lond., 1817-1833, passim.

38 For Barron Field, (1786-1846), see Aust.Dict.Biog., 1, pp.373-376.

39 e.g. in his poems "Botany Bay Flowers" and "The Kangaroo" in First Fruits of Australian Poetry, Syd., 1819, an anthology which inspired the cruel quatrain :

> Thy poems, Barron Field, I've read
> And thus adjudge their meed -
> Such a crop proclaims thy head
> A barren field indeed.

His botanical work deserves a much higher assessment.

40 Some of which have already been noted in Chapter III, pp.150, 162, 164, 169-170, 175-177.

41 Clokie : Herbaria of Oxford, p.164.

valuable papers by Allan Cunningham,[42] a report on colonial timber[43] and "A Glossary of the Most Common Productions in the Natural History of New South Wales and Van Diemen's Land" apparently compiled by Field himself.

While the judge was extolling the "tropical luxuriance of vegetation" at Illawarra, one of the most unusual botanical travellers ever to visit N.S.W. was collecting with almost unbelievable industry. Franz Wilhelm Sieber,[44] a Bohemian naturalist, arrived in Sydney from

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42 In one of these, "A Specimen of the Indigenous Botany of the Mountainous Country between...Port Jackson and...Bathurst", Cunningham described several new species, including "a new and highly interesting" climbing plant, Fieldia australis, dedicated to "a gentleman who has, in his judicial capacity, much aided the advancement of...New South Wales." On the other hand, Benjamin Disraeli found Field "a bore and vulgar...noisy, obtrusive, jargonic...a true lawyer, ever illustrating the obvious, explaining the evident, and expatiating on the commonplace." (Disraeli to his father, 14 July 1830, quoted in Proc.Roy.Soc.NSW, 1918, pp.221-222). Others were similarly trenchant, but Field nevertheless made a worthwhile contribution to colonial science at a time when champions were sorely needed.

43 See Chapter IV, pp.356-357.

44 F.W. Sieber was born at Prague, 30 Mar. 1789. After unsuccessfully training first as an architect and then as an engineer, Sieber turned to natural history and the commercial collection of plants and other biological material. In 1812 he returned from an Italian tour with some 20,000 plant specimens. Sieber also collected in Bohemia, and strove to establish a central plant specimen industry to supply the great herbaria of the world. After further studies, first in medicine and then in the humanities at the University of Prague, Sieber began a tour of Crete, Egypt, and Palestine in 1816, returning with vast collections of plants which he assembled into herbarium sets for sale. In May 1822, Sieber examined the herbarium of the celebrated Joseph Pitton de Tournefort (1656-1708) in Paris before proceeding to Marseilles whence he sailed to the Cape of Good Hope and to Mauritius. His world tour was completed by visiting N.S.W., crossing the Pacific to Cape Horn, and back to the Cape of Good Hope before returning to Europe. By July 1824 he was in London. Sieber returned from his world trip with some 300,000 plant specimens. During the voyage he quarrelled frequently with captains and crews of the various ships, and otherwise betrayed a growing mental instability. He devoted much time to the study of hydrophobia, dabbled in poetry and drama and devised grandiose schemes for colonising North Africa. Sieber spent the last three months of 1827 in a mental asylum, and thereafter was committed at intervals. On 5 Dec. 1830 he was taken, by force, to a Prague asylum where he apparently spent the remainder of his life. He continued with his botanical work for a while and worked on a plan to make the Egyptian deserts productive. By 1840 he was completely depressed and in a more or less comatose condition until Dec. 1844 when he died from dropsy. See F.C.Dietrich : "Franz Wilhelm Sieber, ein Beitrag zu Geschichte der Botanik vor sechzig Jahren" ("Franz Wilhelm Sieber : a Contribution to the History of Botany Sixty Years Ago") in Jahrbuch des koniglichen botanischen Gartens und botanischen Museums zu Berlin, Band I, 1881 (Yearbook of the Royal Botanic Gardens and Botanical Museum of Berlin, Vol.I, 1881) pp.278-306.

CONTINENTAL TRAVELLERS

FRANZ WILHELM SIEBER (1789-1844) was an indefatigable botanical collector who spent about six months in N.S.W. in 1823. His specimens were prepared in numbered sets which proved of value to many taxonomists. Already betraying signs of instability when he came to N.S.W., Sieber died in a Prague asylum in 1844.

Portrait : from L.Gluckselig : Franz Wilhelm Sieber : Ein biographischer Denkstein, Vienna, 1847.

LUDWIG LEICHHARDT (1813-1848?) came to N.S.W. in 1842. Much of his most important botanical work was carried out before he led his expedition to Port Essington 1844-1845. Twice unsuccessful in applying for the position of Superintendent of the Sydney Botanic Gardens, he decided upon a career of extensive exploration of the interior of the continent, and disappeared with all of his party in 1848 whilst endeavouring to cross Australia from Moreton Bay to the Swan River.

Photo : from lithograph frontispiece in G.Neumayer : Dr. Ludwig Leichhardt's Briefe an seine Angehörigen...Hamburg, 1881.

Mauritius on 1 July 1823 during a world tour. Within a month he had collected multiple specimens of 300 species of plants. He was especially impressed by the specimens of 150 species of Acacia shown to him by Allan Cunningham.[45] Sieber spent a very busy spring collecting around Port Jackson and in the Blue Mountains, until laden with about 120,000 specimens (representing about 1500 species of flowering and non-flowering plants) this rather lonely and unhappy man sailed in December 1823, after a display of botanical activity unknown since the days of Brown and Caley.

Sieber arranged his collections in numbered sets[46] which proved to be of great value to taxonomists. Bentham acknowledged Sieber's specimens over 440 times in Flora Australiensis[47] and Sieber's name was given to many Australian plants.[48] Franz Sieber the talented, industrious yet unstable botanist, with grand ideas which seldom led to their intended goals, would have been pleased to know that he was so remembered.

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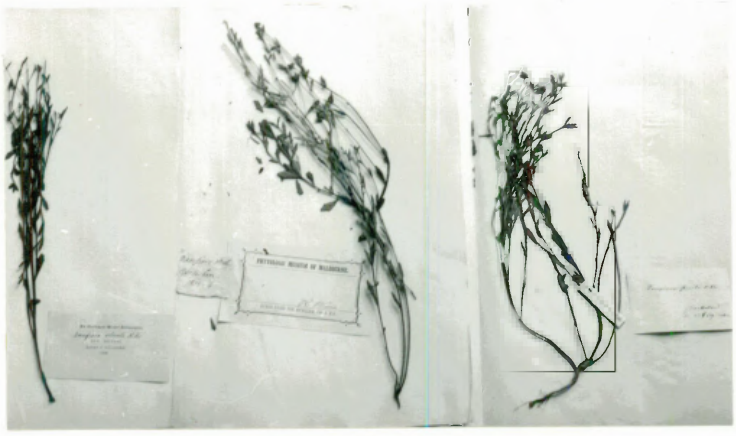
45 Sieber also collected animal specimens and ethnological material. This caused John Lhotsky to lament that a botanist's time and energy should be diverted from botanising. Dietrich : op.cit., p.287.

46 These sets containing N.S.W. species were : Florae Novae Hollandiae containing 645 species of phanerogams numbered consecutively; Synopsis Filicum, Sect.II, comprising 80 species of N.S.W. ferns; Agrostheca comprising 146 species of N.S.W. Gramineae, Cyperaceae, Restionaceae and 1 sp. Juncus; Flora Mixta containing 900 species from N.S.W., the Cape, Mauritius and Martinique. Dietrich considered Sieber's Herbarium Florae Novae Hollandiae his "main work", and accordingly listed the 645 species of this collection. op.cit., pp.298-306. There may well have been some N.S.W. species in the collection of 55 spp. of Mosses, Lichens, Fungi and Algae known as Cryptogama exotica. Sieber's collections were widely distributed. To-day, many of his specimens are preserved in the Natural History Museum, Vienna; the Charles University, Prague; the University of Oxford; the British Museum, and the National Herbarium, South Yarra, Vic.

47 See Appendix I. In quoting Sieber's specimens, Bentham gave the serial numbers, e.g. Eucalyptus stricta Sieb. ex Spreng., "Sieber, n.472". Benth. : Fl.Aust., III, p.218. W.J. Hooker also quoted Sieber's specimens in his Species Filicum, Lond., 1846-64.

48 Australian species which have been named after Sieber are listed in Proc.Roy.Soc.NSW, 1908, pp.120-121. Sieber was long credited with having described some N.S.W. species himself (in such works as A.P. de Candolle : Prodromus Systematis naturalis regni vegetablis, Paris, 1824-1873) but this view is no longer held. See R.H. Anderson in Contrib.Nat.Herb.NSW, Flora Series 1-18, 1961, p.11.

HISTORIC SPECIMENS OF DAMPIERA STRICTA.



DAMPIERA STRICTA : Left to right: 1. collected by Banks and Solander, Botany Bay, 1770; 2. by Robert Brown, Port Jackson, c.1804; 3. by Franz Wilhelm Sieber, near Sydney, 1823 (Sieber: Fl. Novae Holl. No.226).

DAMPIERA STRICTA : Left to right: 1. Collected by Ludwig Leichhardt, Sth. Q'ld., 3 Sept. 1843; 2. and 3. by F.W. Sieber.

Photos: L.G., Melbourne Herbarium, Jan.1967.

In December 1827 William Romaine Govett[49] arrived in Sydney to join Major Thomas Mitchell's Department as an assistant surveyor. After leaving the Colony in March 1834, he used his notes of survey trips to the Hawkesbury, the Blue Mountains and Goulburn, to prepare a series of illustrated articles[50] which contained some general botanical observations[51]. During Govett's time, another scientific visitor of note spent about nine months in N.S.W. after instigating the formation of the "Scientific Society" in Van Diemen's Land. John Henderson,[52] a military surgeon long resident in India, arrived in Sydney in March 1830 and spent "several months" there before making a "pedestrian excursion...into the interior." Henderson's medical training equipped him to develop a wide knowledge of natural science, and by July 1830 he was at Wellington where the limestone formations provided scope for his geological investigations while he collected palaeontological material at Governor Darling's request.[53] Botanical observations were somewhat limited, but Henderson made two interesting contributions. First, he drew attention not only to the "melancholy" aspect of the vegetation (for which there was already ample testimony[54]), but also to the endemic nature of the species comprising it. This made the origin of such a flora a question "of deep and general interest"[55]. Second, it seems

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49 For W.R. Govett (1807-1848) see Aust.Dict.Biog., 1, pp.467-468.

50 Twenty articles entitled "Sketches of New South Wales" in The Saturday Magazine (S.P.C.K.) between 7 May 1836 and 2 Sept. 1837.

51 Govett referred especially to "the clean, open, and park-like appearance" of "the county of Argyle" with "'Stringy-Bark Forest' and 'Iron-Bark Forest'" for the dominant trees of which he provided "a correct representation" in his sketches. Govett also outlined some general colonial uses for certain timber trees, and indicated the usual relief at finding "open and delightful country" after passing through "the tedious brushes of the Wombat and Bargo forests." (Sat.Mag., 16 July 1836), Cf. the impressions of others in Chapter II, p.25 and Chapter III, p.153.

52 For J. Henderson (d.12 Mar. 1836) see M.E. Hoare's interesting paper in Records of the Aust. Academy of Science, I, No.3., 1968, pp.7-24

53 Henderson : Observations, pp.109 et seq.

54 See Chapter III, p.151.

55 Henderson : op.cit., pp.131-132. Darwin's Origin of Species, published nearly 30 years later, was in answer to just such a question posed in wider terms.

that his own observations of the Australian flora and knowledge of the way in which the new species then being discovered were described and named, probably prompted the revolutionary system of botanical taxonomy which he advocated in Van Diemen's Land and finally developed in "A Letter on Nomenclature" compiled for submission to the French Institute after he returned to India.[56] Henderson was convinced that the progress of botany was stifled by its own recondite taxonomy, based upon artificial principles. Already there were some 100,000 plants on which had been bestowed "arbitrary and independent" names, "having no clue or chain to connect them one with another." Henderson wanted botanists to have criteria couched in absolute terms so that anyone who discovered a plant

> should be enabled...to give it the self-same appellation that another individual, having no communication with the first, would have assigned to it, had he discovered its co-partner in any other part of the world.[57]

The only workable system would provide the investigator with "a perfect ideal chain" of universally understood symbols.[58]

Although Henderson rightly pointed to the need for more study of plant physiology, he failed to give due credit to "the admirers of that phantom -- a natural arrangement."[59] He virtually advocated the replacement of one esoteric system by another, for his plan of assigning "capital consonants", "small vowels" and syllables to designate various characteristics, was based upon Linnaeus's artificial system of 23 classes, each divided into two, three or four orders[60] -- a system which many botanists had long considered inadequate and obsolete.[61] The idea

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56 Henderson left Sydney in Jan. 1831. His "Letter" was dated "Juanpore, Nov. 1st. 1831". op.cit., pp.155-180.

57 Henderson : op.cit., p.160.

58 Thus would be resolved the situation wherein "there is...neither line of connection betwixt the specimen and the name, or betwixt one name and another." op.cit., p.162.

59 op.cit., p.178.

60 "Plants are disposed according to the Number, Proportion, and Situation of the Stamina and Pistilla". J. Lee : An Introduction to Botany...Lond., 1788, p.73.

61 Augustin Pyramus de Candolle's Flore francaise (1805) and Robert Brown's Prodromus (1810) both adopted the "natural system" advocated by the Jussieus. See also Chapter V, p.459.

of a "natural arrangement", that "phantom" which implied possession of "a thorough acquaintance with the order in which the Divinity created", had come to stay. The French to whom Henderson confided his numerico-literary system were hardly likely to consider it less chimerical than the British, whom, because of their "strong disinclination to change", he was loath to approach. The French, in fact, must surely have been more attuned to the views of the Jussieus,[62] whom the British doctor did not deign to mention. He did, however, encourage scrutiny of the problems of botanical taxonomy, and therein lay a significant contribution

During the 1830s and 1840s the succession of Continental visitors was revived and maintained. In 1832 there arrived in Sydney from Brazil, a Polish doctor and botanist, John Lhotsky,[63] who was shortly writing natural history articles for the newspapers, offering specimens for sale[64] and giving botany lectures under vice-regal patronage.[65] He called on Richard Cunningham, who considered him "a ready labourer in the field of science",[66] and at the beginning of 1834 left Sydney to explore the Monaro. Snubbed by "the high and wealthy", but "always welcomed in the houses and huts of the humble and lower classes", Lhotsky regarded himself as something of an outcast, a martyr for science, "being without fortune and unconnected with Government."[67] This did not deter him from making astute geological and botanical observations[68] during a journey which some believe took him to Mt. Kosciusko[69], so named shortly after by another Polish scientist. Lhotsky "collected some good plants" on Razorback and "about 100 species...in

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62 Bernard de Jussieu (1699-1777) a French-Swiss botanist and his nephew Antoine Laurent de Jussieu (1748-1836) developed the "natural system" published in the latter's Genera Plantarum secundum Ordinalis desposita, Paris, 1789.

63 For John Lhotsky (b.1800) see Aust.Dict.Biog., 2, pp.114-115; Proc. Roy.Soc.NSW, 1908, pp.72-74; H.M.E. Heney : In a Dark Glass, Syd., 1961, pp.64-65.

64 Syd.Gaz., 7 Feb. 1833.

65 Syd.Gaz., 19 Mar. 1833. Lhotsky's lectures on "Mineralogy, Botany and Zoology" were given in Hart's Buildings, Pitt St., Sydney.

66 R. Cunningham to Wm. Swainson, 9 Nov. 1833. Papers of Linn.Soc. Lond., ML. FM4/2699.

67 Lhotsky : A Journey, p.37.

68 Some of these, including his attempt at ecological classification, have been noticed in Chapter III, pp.21, 158, 161, 207.

69 Correspondence with Professor T.G. Vallance, University of Sydney, 1968.

passing Argyle."[70] He discovered many "a rich spot for Botanists" and places which "would be interesting for the Botanist of leisure and experience."[71] He noted "for the sake of other Botanists who may come after" that "the proper flower season is in these latitudes already over by the end of January", but he managed to find

> many plants in flower, and others in seed, of which latter I made (especially on the Alps), a splendid collection.[72]

Lhotsky referred his botanical material to Richard Cunningham, to whom he was "indebted for much information connected with Botanical nomenclature" for his published account, and whom he considered

> stood unrivalled in the knowledge of Australian plants, amongst all the persons we have met with in this Colony.[73]

The botanical and geographical success of this expedition did not win much official approbation :

> Although this young, and (as it now is) poor, distressed, lingering Colony is annually taxed from £1000 to £1300 for Natural History,

Lhotsky found that he

> was not deemed worthy to receive, either before or subsequent to the expedition...any official assistance whatever.[74]

This was a fairly general complaint among the Continental scientific visitors. On the one hand, it seems that many of them expected instant deferment to their scientific knowledge and attainments and on the other there appears to be clear evidence that there was an easily-stirred xenophobia in official circles. Probably the same forces which militated against Leichhardt some ten years later[75] were already gathering strength when Lhotsky came to N.S.W., and certainly his quarrels with Edward Deas Thomson did not enhance the scientist's prospects of preferment.[76] For vastly different reasons, therefore, the forthright editor of the Monitor and an embittered traveller from one of the "old rich countries" agreed that there were some irritating aspects in the scientific vote in the Estimates of 1834.

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70 Lhotsky : A Journey, pp.7, 11.
71 op.cit., pp.62, 96.
72 op.cit., p.62.
73 op.cit., p.7.
74 op.cit., p.57.
75 See Chapter V, pp.481 et seq.
76 Heney : Dark Glass, p.65. For Deas Thomson, see Chapter V, pp.467,480.

In some disgust, Lhotsky left Sydney for Hobart in October 1836 and after further collecting trips and frustrations, sailed for London in April 1838. Bentham acknowledged a few of Lhotsky's Argyle and Monaro plants[77], and about 100 of his specimens are preserved at Oxford[78]. Others are in the Melbourne Herbarium.

In 1834, while Lhotsky was busily exploring and collecting, an Austrian nobleman and botanist, Karl Alexander Anselm, Freiherr von Hügel[79] spent some months in N.S.W., although his most important Australian botanical work was done in Western Australia[80]. Hügel visited the Illawarra where he noted "that the scenery and vegetation... reminded him of...the interior of Ceylon".[81] Hügel did much to promote a wider knowledge of Australian Plants especially in Europe, and some of his Illawarra specimens were acknowledged by Bentham.[82]

In April 1839, Paul Edmund Strzelecki[83], another Polish naturalist arrived in Sydney and soon began the geological surveys which took him to the Alps previously traversed by his fellow countryman. Principally a geologist, Strzelecki was more concerned with the elucidation of the fossil, rather than of the existing flora. Yet he

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77 See Appendix I.

78 Clokie : Herbaria of Oxford, p.199.

79 F.A.A. von Hügel (1795-1870) was of Austro-Scottish extraction. He toured the Mediterranean, the East and the Pacific, 1831-1836 "and arrived home with immense collections". He met John Henderson in Kashmir, about 1835. Hügel cultivated Australian plants in his fine garden in Vienna. The White Cypress, Callitris hugelii (now known as C.columellaris "inland form") frequently mentioned in this study, was named in his honour by the botanist Carrière in 1855. See Jour. W.A. Nat.Hist.Soc.,1909,pp.18-19; Aurousseau :Leichhardt,II,p.804; Records Aust.Academy Science,I,No.3,p.11. Lhotsky referred to Hügel as "a German Gentleman" who travelled in the Swan River Colony, Van Diemen's Land, "and within the limits of our Colony. He possesses a fine botanical nursery-garden near Vienna." Lhotsky : A Journey,p.96.

80 See K.A.A. von Hügel: Enumeratio Plantarum quas in Novae Hollandiae Ora Austro-Occidentali ad Fluvium Cygnorum et in Sinu Regis Georgii... Vienna,1837. This work listed 307 species, and referred to Robert Brown (to whom it was dedicated), Allan Cunningham, Franz Sieber, Ferdinand Bauer, J.J.Labillardière, James Backhouse and Charles Fraser, all of whom are mentioned elsewhere in this study.

81 H.Wells : A Geographical Dictionary...Syd.,1848,p.211, and Lang : Historical Account,II,p.289.

82 See Appendix I. Some of Hügel's specimens are preserved in the Melbourne Herarium.

83 For P.E. Strzelecki (1797-1873) see Heney : Dark Glass, and Aust. Dict.Biog.,2,pp.494-495.

was one of the first to refute, in his "foreign and unidiomatic English",[84] the prevailing view that the vegetation exhibited "a striking dulness and uniformity of hue".[85] One needed only to give the country "a near examination" to find areas

> gracefully sprinkled with isolated clumps of trees, covered with the richest tufted herbage, and enamelled with flowers of varied form and colour; or...immense thickets, where innumerable flowering shrubs, and elegant interwoven creepers, form bowers as impenetrable and as picturesque as those seen in the forests of Brazil.[86]

Strzelecki also spoke of "the peculiar vegetation" exhibiting "a general physiognomy, which is exceptive with respect to the rest of the globe",[87] and compiled a brief resumé of some of the earliest collectors to "cast the eye of a botanical observer upon the living plants of Terra Australis."[88]

By the time Strzelecki left Sydney in April 1843, a British visitor with an eye for natural history, Louisa Anne Meredith[89], had come and gone. Arriving in Sydney in September 1839, Mrs. Meredith accompanied her husband over the Blue Mountains to Bathurst before settling at Homebush in January 1840. Her accounts of these travels are well furnished with accurate botanical observations which indicate a prior knowledge of the Australian flora. Like others she collected plants[90] in the Blue Mountains and recorded general impressions of the

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84 Strzelecki's description of his own style. Strzelecki :Physical Description,p.viii.

85 Strzelecki :op.cit.,p.241. See also Chapter III,p.162.

86 op.cit.,p.242.

87 op.cit.,p.241.

88 op.cit.,p.254.

89 Louisa Anne Meredith (née Twamley) (1812-1895) whose poetical work and accounts of N.S.W., Victoria and Tasmania reflected a keen interest in, and wide knowledge of natural history, had strong Chartist sympathies, and was admired by Sir Henry Parkes. See Margaret Swann in JRAHS,1929,pp.3-14.

90 "including several orchideous plants, and a bright rich blue flower..." (probably Patersonia) which she"named...the 'Knight of the Garter.'" Meredith :Notes and Sketches,p.120.

PROFESSIONAL GARDENER AND PROFESSIONAL COLLECTOR

WILLIAM VERNON (1811-1890) was born in Surrey, England, and joined the service of Lord Cornwallis as a gardener. Coming to N.S.W., he joined the staff of the Sydney Botanic Gardens, where in 1855 he won the gratitude of Mueller "for much aid." Vernon later served as gardener to Thomas Sutcliffe Mort who had one of the finest private gardens in Sydney. He died at his home 'Laindon', St. Ives, on 6 Jan. 1890.

Photo : Proc.Roy.Soc.,NSW, 1908.

FREDERICK STRANGE (d.1854) arrived in Sydney in 1840 from South Australia where he had spent four years. He collected at Brisbane Water, the Hunter, Hastings and Macleay Rivers, Moreton Bay and New Zealand before sailing to England for a brief visit, 1852-1853. On landing on the Second Percy Island from his ketch Vision on another collecting trip, he and three companions were killed by aborigines on 15 October 1854.

Photo : Proc.Roy.Soc., NSW, 1908.

vegetation which have already been noticed.[91] In October 1840, the Merediths sailed for Van Diemen's Land where Mrs. Meredith undertook more detailed studies of natural history which were published.

In 1840, Frederick Strange[92] arrived in Sydney where within the next few years he made the acquaintance of a circle of distinguished naturalists including Dr George Bennett, Ludwig Leichhardt, John Gilbert and John MacGillivray.[93] By 1841, Strange was apparently living at Gosford and by May 1843 he was back in Sydney whence he made excursions to the Hunter and the Hastings as a "collector of specimens of natural history".[94] In 1844, Strange visited the Clarence[95], and after a visit to New Zealand and excursions to Moreton Bay, he sailed for England in 1852 with his family and with the proceeds of his extensive collecting tours, including

> a very elegant collection of ferns, amounting to sixty or seventy in number, many of which have been pronounced new.[96]

Strange returned to Sydney in March 1853, and proceeded to organize the northern collecting expedition which led to his death on 15 October 1854.[97] Walter Hill who was botanist to the expedition was fortunate enough to return to Sydney and he was shortly appointed

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91 See Chapter III, pp.156, 174, 175.

92 For Frederick Strange (d.1854) see J.H. Maiden in Proc.Roy.Soc. NSW, 1908, pp.122-124, and H.M. Whittell in The Australian Zoologist, 1947, pp.96-114. Strange came to South Australia in 1836 and had been on expeditions with Charles Sturt.

93 Evidence of these meetings is found in correspondence recorded in Whittell op.cit., and in Aurousseau: Leichhardt, III, pp.901-902, 906. Bennett, Leichhardt, Gilbert and MacGillivray are mentioned elsewhere.

94 SMH, 20 Apr.1844. See also SMH, 23 Aug.1844 and 7 Sept.1844 for references to Port Macquarie visit and to the shipment of natural history specimens.

95 SMH, 30 Nov.1844.

96 SMH, 9 Mar.1852.

97 Strange and three of his companions were speared by aborigines on the Second Percy Island whilst collecting shells on the beach. SMH, 21 Nov.1854.

Superintendent of the Brisbane Botanic Gardens.[98] Three years after Strange's violent end, his dried plants were still being offered for sale in London at £2 per 100.[99]

On 14 February 1842, the Sir Edward Paget sailed into Port Jackson bringing yet another enthusiast from the Continent. This was Ludwig Leichhardt[100], who found it impossible to describe either the excitement he felt as he "leapt ashore" or the delight with which he "greeted every botanical novelty".[101] This same exuberance characterised most of the subsequent actions of this unusual man, until it finally impelled him to attempt what proved to be impossible and fatal just six years later. In the meantime[102], Leichhardt delivered public lectures on botany[103], travelled widely on scientific excursions[104], and won and lost friends on the Botanic Garden Committee while he twice applied for

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98 Walter Hill (1820-1904) arrived in Sydney in Feb.1852. Having spent two years at the Royal Botanic Gardens, Edinburgh and nine years at Kew (1843-1851) he presented a letter of introduction to Sir Wm. Macleay who arranged for him to meet Strange. Hill also made some excursions to the Turon River and other areas with P.L.C. Shepherd. When the party landed on Percy Island, he went inland to higher ground in search of plants, and thereby escaped the aboriginal attack. He was Colonial Botanist of Queensland from 1859 until his retirement in 1881. Bentham acknowledged 34 of his specimens from "Mt.Lindesay" in Flora Australiensis. See Appendix I.

99 In 1857 six sets of Strange's plants, comprising 218 specimens "from Broken Bay and Sydney", and from "Australia", New Zealand, New Caledonia,etc." were offered for sale by Samuel Stephens, 24 Bloomsbury St., London. W.J. Hooker :Journal of Botany and Kew Garden Miscellany, Lond., 1857, IX,pp.189-190.

100 For Friedrich Wilhelm Ludwig Leichhardt (1813-1848?) see Aust. Dict.Biog.,2,pp.102-104; Aurousseau :Leichhardt,I,pp.vii-xvi.

101 Leichhardt to Wm.J.Little, 25 Mar.1842, Aurousseau :op.cit.,II, p.453. Cf. Leichhardt to Wm.Nicholson, 17 May 1842 :"...after every excursion I come back laden with...the finest and fullest inflorescences of the native plants." op.cit.,II,p.472.

102 Especially between Feb.1842 and July 1844.

103 July-Aug.1842. Aurousseau :op.cit.,II,p.788.

104 Leichhardt visited the Botanic Gardens, Darling Harbour, North Shore, South Head and Botany Bay ; Newcastle, whence "excursions in all directions" were made to such places as Stockton, Ash Is., the Rev. C. Wilton's "Valley of Palms" (a little south of Newcastle) Red Head, Lake Macquarie, Brisbane Water and Gosford, Port Stephens, Raymond Terrace, the Paterson and Allyn Rivers, the Liverpool Range and Liverpool Plains, the Namoi, Gwydir, Dumaresq and Condamine Rivers, Ipswich and Brisbane; the Bunya Mts., Glasshouse Mts. and Wide Bay; Cunningham's Gap, the New England Tableland, Apsley Falls and Gloucester thence back to the coast.

the position of superintendent.[105]

During his search for kindred spirits--and patrons--in Sydney, Leichhardt found

> a few amateurs of science, people here and there who began to record observations and to make collections, and whom it may ultimately be possible to encourage into greater and more useful efforts.[106]

Among these were Dr Charles Nicholson, the Rev. W.B. Clarke[107], Sir Thomas Mitchell[108], Lieut. Robert Lynd[109], George Bennett, Phillip Parker King and Frederick Strange. Leichhardt found other amateurs on the Hunter, notably the Rev.Charles Wilton[110] and Alexander Walker Scott.[111]

Robert Lynd, "who had taken up botany as a pastime and had made quite a big collection of plants",[112] was Sydney barrack-master. He provided Leichhardt with accommodation while they proceeded to amass a sizable herbarium, "well classified" with the aid of works by Brown and De Candolle.[113] Rather lonely, virtually unemployed, and dispirited

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105 See Chapter V,pp.481-484.

106 Leichhardt to Wm.J. Little, 23 Mar.1842, Aurousseau :Leichhardt, II,p.454.

107 Nicholson and Clarke supported Leichhardt on the Botanic Garden Committee. See Chapter V,p.484.

108 to whom Leichhardt presented a letter of introduction.

109 For Robert Lynd (1800-1851) see Aust.Encyc.,5,p.390 and Aurousseau: op.cit.,II,p.800.

110 Rev. Charles Pleydell Neale Wilton, M.A., is noticed later.

111 A.W. Scott (1800-1883) also arrived in Sydney in 1827 and later settled at Ash Island, Hunter River. Interested chiefly in entomology, Scott was a trustee of the Aust. Museum, 1862-1879. His two daughters, Harriet and Helena were accomplished artists with some interest in botany. They are noticed later.

112 "...though he had neither sorted nor determined them." Leichhardt to G. Durando, 23 June 1842, Aurousseau :op.cit.,II,p.493. Cf. the letter to Wm. Nicholson, of 17 July 1842 : Lynd "has been botanising everywhere, but always as an amateur, without regard either to technical study or the organisation of a collection." Aurousseau :op.cit.,II,p.506.

113 Leichhardt had Brown's Prodromus and the first seven volumes of A.P. DeCandolle :Prodromus Systematis naturalis regni vegetablis, Paris, 1824.

by the rejection of his application for the superintendency of the Botanic Gardens, Leichhardt

> would have given up hope long ago, if the novelty of my surroundings, the beautiful plant-life of the sandy hills of Sydney, had not inspired my courage (and energy) beyond defeat, and if good friends like Mr. Lynd had not given me a helping hand.[114]

The two friends proposed "to publish a flora of Sydney in English" but this did not eventuate[115], although there is ample evidence[116] that Leichhardt, despite his short-sightedness, was equal to the task of producing a useful botanical guide for field workers.

By the time Leichhardt returned from his Wide Bay journey via New England, Gloucester and Stroud in May 1844, he had set his mind on going overland to Port Essington--a feat he achieved[117]. Returning to Sydney in March 1846 after this expedition, Leichhardt was invited by William Macarthur to Camden Park "to obtain the necessary tranquillity" in which to prepare his journal for publication[118]. He also gave some highly successful lectures on the expedition in the Mechanics' School Arts, Sydney where he was "received with a burst of enthusiastic applause".[119] Leichhardt's next intention was to lead an expedition

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114 Leichhardt to Durando, 23 June 1842, Aurousseau : op.cit.,II,p.493.

115 ibid.,also op.cit.,II,p.507. In 1844-1845, Leichhardt was away on his Port Essington expedition, and in 1847 Lynd was transferred to New Zealand where he died four years later.

116 See Aurousseau : Leichhardt, passim, but especially Vol.II; also Leichhardt: Journal of an Overland Expedition in Australia, from Moreton Bay to Port Essington...Lond.,1847.

117 During the expedition, John Gilbert, John Gould's field collector, was speared to death 28 June 1845, and James Snowden Calvert, who had come to N.S.W. in the same ship as Leichhardt, was severely wounded. He recovered and later married a fellow naturalist and botanist, Louisa Atkinson, who is noticed later. For Gilbert, see A.H. Chisholm: Strange New World, Sydn.,1941. The solitary "Gilbert" specimen acknowledged by Bentham may well have been collected by John Gilbert. See Appendix I.

118 Leichhardt to Helenus Scott, Glendon, 16 Apr.1846, Aurousseau : op.cit.,III,p.854-855.

119 SMH, 20 Aug.1846. Leichhardt's lecture on the botany of the expedition was delivered "to the most crowded audience we ever remember to have seen gathered in the walls of the Institution". SMH, 27 Aug.1846.

across the continent to the Swan River, and after the abortive attempt of 1846-1847, he and his party perished some time after 4 April 1848, somewhere west of the Cogoon River.

Leichhardt's claim to fame has traditionally, and justifiably, been due to his remarkable achievement in leading a privately-sponsored expedition some 3,000 miles overland through largely unknown country to Port Essington, 1844-1845. The riddle of his disappearance in 1848 provided all the additional mystique necessary for the creation of an Australian folk-figure in the best heroic tradition.[120] Just a century after Leichhardt had sailed for N.S.W., the old legend was shattered.[121] The heroic and amiable, if somewhat eccentric scientist who had sacrificed himself exploring the vast unknown interior, had now become an unstable, inefficient blunderer, an obstinate megalomaniac with more pretension than attainment in science, a poor bushman whose myopia had for a time been exceeded only by his luck. Current efforts[122] to balance the picture are good to see, as we strive to understand something of this complex personality who apparently also baffled some of his contemporaries.

In his botanical work, Leichhardt showed tremendous enthusiasm and dedicated application. Before leaving Europe he schooled himself for natural science in Australia, not only by directed study, but also by visiting Continental hot-houses and the Kew Gardens to see Australian plants, by examining the collections brought to France by Dumont D'Urville in the Astrolabe[123] and by consulting Sir William Hooker.[124]

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120 and indeed as late as 1957 the inspiration behind the publication of Patrick White's Voss.

121 by the publication of A.H. Chisholm : Strange New World, which soundly condemned Leichhardt and began a new tradition hard on the heels of the sympathetic account in C.D. Cotton :Ludwig Leichhardt and the Great South Land,Syd.,1938.

122 by Marcel Aurousseau in the Introduction and commentary in his The Letters of F.W. Ludwig Leichhardt, Camb.,1968,3 vols. The publication of Leichhardt's journal has been promised.

123 Aurousseau :op.cit.,I,p.405. See also Appendix XIV.

124 Aurousseau :loc.cit.

Soon after landing in Sydney, he made for the classic collecting grounds of Botany Bay, and was able to identify many species at first sight. By the end of June 1842, just three-and-a-half months after landing, he was ready to deliver lectures in which he

> tried to explain the organisation of the families that arouse most interest when people go out walking, e.g. the Myrtaceae, Rutaceae, Proteaceae, Epacridae and the Cycads.[125]

As only 25-30 people came to hear the lectures, Leichhardt "could hardly call them crowded"[126] but the long-term effect was probably significant, for he stirred an interest in botany, not only among his audience in the Sydney Mechanics' School of Arts, but also among "the more advanced boys of the Sydney and Australian Colleges"[127] whom he took on "public botanical excursions" and "induced...to form collections".[128]

It is clear that throughout his travels in the settled areas Leichhardt saw himself as an apostle of science, "an itinerant preacher" pledged to spreading the scientific gospel by encouraging "an interest in science" among those with whom he "won acceptance".[129] He accordingly recorded with probable pride the fatiguing journey in November 1842 from Newcastle to Gosford and back, when "only the honey from the flowers of Lambertia formosa...kept us going".[130] He probably derived similar comfort from being able to report that he had been reduced to "begging for newspapers so that he might collect plants"[131] during the long and

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125 Leichhardt to Durando, 6 Jan.1844, Aurousseau :op.cit.,II,p.697. See also Leichhardt's lecture notes in ML.C149.

126 Leichhardt to Wm.J. Little, 12 Nov.1842, Aurousseau :op.cit.,II, p.589. See also Leichhardt to Wm. Nicholson, 17 July 1832,II,p.507.

127 Sydney College was opened under W.T. Cape in 1835; it closed in 1847. The Rev. J.D. Lang's Australian College opened in 1832 and closed in 1854.

128 Leichhardt to Wm. J. Hooker, 5 Sept.1842 and Leichhardt to Wm.J. Little, 12 Nov.1842, Aurousseau :op.cit.,II,pp.513,589.

129 Leichhardt to Wm. Nicholson, 17 July 1842, op.cit.,II,p.509.

130 Leichhardt to Wilhelm Kircher (Consul for Hamburg), 4 Dec.1842, op.cit.,II,p.608. See also Leichhardt to Lynd, 24 Nov.1842, op.cit., p.593. Lambertia formosa is the Honey Flower or Mountain Devil, a shrub of the sandstone and heathland country.

131 Leichhardt to Durando, 6 Jan.1844, op.cit.,II,p.700. The supply of suitable drying paper for the preparation of herbarium specimens was a perennial problem for colonial botanists.

often arduous journey from the Hunter River to Wide Bay and back between December 1842 and May 1844. On this and other trips, Leichhardt made "immense collections",[132] and long after his disappearance, no fewer than 260 of his N.S.W. plant specimens were examined and acknowledged by Bentham during the compilation of Flora Australiensis.[133] Here at least was some compensation for the non-fulfilment of the grand botanical plans Leichhardt had formulated since his arrival in New South Wales. Had he written his proposed Flora of Sydney and become Superintendent of the Sydney Botanic Gardens in 1842 or 1844, there seems little doubt that Leichhardt would have made a contribution to Australian botany more commensurate with his ability, and, depending upon the generosity of the colonial purse, his impact upon colonial science would have been much more easily assessed.

While Leichhardt was overlanding to Port Essington, two notable visitors came to Sydney and took more than a passing interest in the vegetation. The first was Eugène Delessert[134], who stayed in the Colony from December 1844 until August 1845.[135] Amid a round of social engagements, shooting and hunting parties, Delessert made a solemn pilgrimage with the French consul[136] to the monuments to La Perouse and his Franciscan chaplain-naturalist, Louis Receveur, after which

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132 Archer diary quoted in Aurousseau :op.cit.,II,p.795. Leichhardt collected a wide variety of specimens including rocks, shells, insects, and plants both living and fossil.

133 See Appendix I. Some of Leichhardt's specimens are still preserved in the National Herbaria of N.S.W. and Victoria, and in 1858 625 specimens collected by Leichhardt and Lynd were purchased for the British Museum. (Collections of Brit.Museum : Geo.Murray : Botany, p.93). Leichhardt also "sent a collection to the Museum of the Jardin Des Plantes", Paris. Leichhardt to Durando, 12 July 1844, Aurousseau :op.cit.,II,p.777.

134 Eugène Delessert (1819-1877) was a member of a celebrated French family of bankers, botanists and conchologists. He included N.S.W. in his world itinerary at the suggestion of a Dr Douglas who had lived in the Colony (he is not identified, but may have been one of the doctors of that name noted in Aurousseau :op.cit.,III,p.1058).

135 E. Delessert :Voyages dans les Deux Oceans, Atlantique et Pacifique 1844 à 1847, Paris, 1848, pp.71 and 179.

136 M. Faramond.

"un grand nombre de jolies fleurs" was collected.[137] Delessert also visited the Botanic Garden, ("la promenade favorite des habitants de Sydney") which he noted was

> divided into two parts, of which the one situated near the water's edge, is the botanic garden proper.[138]

Delessert stayed at Camden Park as the guest of William and James Macarthur[139] and made an excursion to the Hunter River[140] before leaving the Colony.

The second of these visitors, George French Angas[141], naturalist and artist, came to N.S.W. from South Australia on his first visit in July 1845 to exhibit his paintings. By the time he left for England in September 1845, he, like Delessert, had inspected the Botanic Garden and the French monuments at Botany Bay, "a lone and neglected spot"[142] from which he "returned...late in the evening... laden with botanical specimens".[143] Some of Angas's impressions of the vegetation have already been noticed[144], and like many other observers, he felt that "nothing can exceed the beauty of the scenery" of the Illawarra escarpment.[145] The bushland across the harbour from Sydney particularly attracted him, not only because it was "secluded and picturesque", but also because

> I never visited the north shore but I returned with some new addition to my collection of plants, so numerous are the species that spring from amongst the rocks and the sandy soil...[146]

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137 Delessert : Voyages,p.153. Delessert was particularly impressed by the Grass Trees, Xanthorrhoea spp. which he mistook for the Gigantic Lily, Doryanthes excelsa.

138 Delessert : Voyages,p.95: "Il est divisé en deux parties, dont l'une, située près du bord de l'eau, est le vrai jardin botanique." i.e. the Lower Garden area, see Chapter V.

139 Delessert : op.cit.,p.113.

140 op.cit.,p.179.

141 George French Angas (1822-1886) was a son of George Fife Angas (1789-1879), promoter and pioneer of South Australian colonisation. See Aust.Encyc.,1,pp.18-19.

142 Angas : Savage Life,II,pp.190-191; 194-195.

143 op.cit.,II,p.196.

144 Chapter III,pp.151,156,170,175,180.

145 Angas : op.cit.,II,p.240. It is likely that Martens, who had painted the Illawarra forests, suggested that his friend would be similarly inspired. See Lionel Lindsay : Conrad Martens, the Man and his Art, Syd.,1920,p.7.

146 Angas : op.cit.,II,p.205.

and there was the additional prospect of visiting a former shipmate of Charles Darwin, the Beagle's artist, Conrad Martens, who with an artist's eye, had chosen to live by "a gurgling stream almost choked with the luxuriance of the flowers that surround it".[147]

During a subsequent visit to N.S.W., Angas succeeded the Rev. G.E.W. Turner as secretary to the Australian Museum, 1853-1860, but his work there was chiefly conchological. Angas reflected the accuracy of his botanical observations in his art, and the same realism was often shown in his written impressions of the vegetation which he so admired.

People were apt to be lured to N.S.W. by mineral, rather than by botanical riches during the 1850s, and so it was that in 1852, a writer, William Howitt[148] came to Australia with his sons. After some success on the Victorian goldfields, William Howitt visited Sydney in June 1854 and rode to Botany Bay along the track now well-trodden by naturalists. Howitt had already collected plants in Victoria[149], and he was gratified to find "an assemblage of curious and beautiful shrubs", many of which he collected and identified.[150] In such surroundings, Howitt found it easy to appreciate

> the astonishment and enthusiasm of Sir Joseph Banks, when he stepped ashore here, and found himself in the midst of so entirely new and singular a family of plants, shrubs and trees.[151]

William Howitt returned to England[152] after visiting Sydney, but his son, Alfred William Howitt, remained in Victoria to become the renowned bushman chosen to lead search parties, first in search of, then to recover the remains of Burke and Wills. Reference has already been made to his plant collection which is now preserved in the National

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147 ibid.
148 For Wm.Howitt (1792-1879) see Aust.Encyc.,5,p.21.
149 Howitt : Two Years,II,pp.31-32.
150 op.cit.,II,p.257.
151 op.cit.,II,p.258.
152 In 1870, Howitt retired to Italy where he took a keen interest in the planting of eucalypts.

Herbarium, Melbourne.[153]

Another author who visited the "Australian Gold Colonies" during the early 1850s was Samuel Mossman[154], who explored much of N.S.W. "in the capacity of a naturalist" and thereby "enriched the museums of the United Kingdom with new and interesting contributions from the animal and vegetable kingdoms..."[155] Bentham acknowledged a few of Mossman's N.S.W. specimens in Flora Australiensis.[156]

There was no question of William Henry Harvey[157] being lured to Australia by gold. He came almost solely to study marine algae. Arriving in Sydney during his tour of Australia in May 1855, he immediately went to the Botanic Gardens "to call on Mr. Moore"who drove him "to the heads of Port Jackson" and "out by a road bordering the marshes, where Sir Joseph Banks first botanised here".[158] Harvey did likewise, filling his "collecting box...but not to much profit".[159] Whilst in Sydney, Harvey apparently stayed with Dr George Bennett, whom he found possessed

> a fine library containing many works on natural history, to which he is attached as an amateur... Books abound in every part of the house, and folios lie on tables and chairs.[160]

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153 See Chapter II,p.139. See also Appendix I. There is also a specimen of White Cypress, Callitris hugelii in the Sydney Herbarium collected by the Victorian Expedition in search of Burke and Wills.

154 For the various Australian works of which he was author or co-author, see J.A. Ferguson : Bibliography of Australia,VI, pp.748-750.

155 Mossman & Banister : Australia Visited, p.281. Some of Mossman's specimens are preserved at Oxford. Clokie : Herbaria of Oxford, p.215.

156 See Appendix I.

157 W.H. Harvey (1811-1866), Professor of Botany, Trinity College, Dublin, 1844 and author of Phycologia Australica: or, A History of Australian Seaweeds...Lond.,1858-1863,5 vols., with "coloured figures and descriptions". Harvey came of Irish Quaker stock but was baptised into the Anglican Church on Ash Wednesday,1846. He was an intensely religious man with little sympathy for sectarianism. After his voyage to Australia and the Pacific he married in Limerick, April 1861, but died from lung haemorrhage five years later. See Memoir of William Harvey...Lond.,1869.

158 Harvey : Memoir, p.290.

159 ibid.

160 op.cit.,pp.289-290.

Harvey's botanical interests were further met by a visit to the Macleays before he proceeded to the Hunter on 16 May 1855, accompanied by Moore who took him to the same Valley of Palms which had so intrigued the Rev. C.P.N. Wilton, the Rev. Richard Taylor[161] and Ludwig Leichhardt. Here Harvey collected about a dozen species of ferns[162]. After calling upon A.W. Scott and his "two clever and accomplished daughters",[163] Harvey returned to Sydney, and may then have visited Illawarra before sailing for Fiji on 15 June 1855.[164] Bentham acknowledged Harvey's N.S.W. specimens of flowering plants nearly forty times in Flora Australiensis,[165] but it was as an algologist that Harvey made his particular contribution to Australian botany.

It is recorded that Augustus Frederick Oldfield[166], who is remembered chiefly for his work in Tasmania and Western Australia, once walked "from Sydney to Melbourne" about 1847.[167] Some of his plant specimens dating from 1858-1859 are preserved at Oxford.[168] Bentham considered Oldfield "an accurate observer as well as an intelligent collector", who whilst in England in 1863, "most generously offered the use of his own Australian herbarium to the Kew Museum" as his contribution towards the compilation of Flora Australiensis.[169] By the end of the 1850s, two other significant collections had been sent to Kew. One was from Major N. Vicary (2nd European Regiment,

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161 The Rev. Richard Taylor is noticed later.
162 op.cit.,pp.290-291.
163 op.cit.,p.292.. i.e. Harriet and Helena Scott.
164 op.cit.,p.293.
165 See Appendix I. The specimens were recorded from Port Jackson, Newcastle, Illawarra and Kiama. Some of Harvey's specimens are preserved at Oxford. Clokie : Herbaria of Oxford,p.179.
166 For A.F. Oldfield (1820-1887) see Proc.Roy.Soc.Tas.,1909,pp.25-26; Jour.W.A.Nat.Hist.Soc.,1909,p.22.
167 Melbourne Argus, 13 July 1887, states that Oldfield performed this feat "some 40 years ago".
168 Clokie : Herbaria of Oxford,p.219.
169 Benth.:Fl.Aust.,I,p.14*. See Appendix I for Oldfield's N.S.W. plants acknowledged by Bentham.

Bengal Army) "who seems to have been a very acute and indefatigable investigator of the New South Wales flora".[170] The other was from "Mr. G. Clowes, a gentleman who visited New South Wales for his health" and who "transmitted...very copious and fine specimens of New South Wales plants".[171] At present, little more is known of either of these visitors, but their collections were apparently made so carefully and discerningly that they won the approbation of J.D. Hooker, one of the foremost botanists of the century.

Without doubt the event of the Golden Decade which had the most resounding effect upon Australian botany, was Governor Charles La Trobe's appointment in January 1853 of a Government Botanist to take charge of the Melbourne Botanic Gardens which he had established six years before.[172] The appointee, strongly recommended by Sir William Hooker, was Ferdinand Mueller[173] who had just arrived from Adelaide to establish a chemist's shop. Mueller was Government Botanist of Victoria from January 1853 until his death in October 1896,[174] but in vision, influence and effect he was virtually the "Government Botanist of Australia".

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170 Hooker : Introductory Essay,p.cxxvii.

171 ibid.

172 Of Governor La Trobe himself it was said: "He was a man of a thousand occupations; a botanist, a geologist, a hunter of beetles and butterflies, a musical amateur, a sketcher of no mean pretensions; in short, a complete virtuoso..." See Aust.Dict. Biog.,2,p.89

173 For Ferdinand Jakob Heinrich Mueller (1825-1896) (later Baron Sir Ferdinand von Mueller) see Margaret Willis : By Their Fruits, Syd.,1949. Mueller arrived in Adelaidefrom Germany in Dec.1847, worked in a chemist's shop, and explored in his spare time. After a brief period of farming, he returned to the Adelaide chemist's shop before deciding to open a business of his own in Melbourne in 1852.

174 For part of this period, 1857-1873, Mueller was also Director of the Melbourne Botanic Gardens. Dissatisfaction with Mueller's policy of developing a purely scientific garden rather than an aesthetically landscaped recreation ground, led to him being relieved of the Directorship in June 1873. Moving out of the residence as ordered, he never entered the Gardens again, but maintained the office of Government Botanist first in a hotel room, and later in his house in Archer St., South Yarra.

Mueller served as botanist to A.C.Gregory's North Australian Exploring Expedition, 1855-1856, and travelled widely in South Australia, Victoria and Western Australia. He visited New South Wales briefly on six occasions over a period of twenty-five years. Late in December 1853 he quietly investigated the Murray Valley while gold fever raged to the north and south. The area between the Murrumbidgee and Darling confluences with the Murray was given particular attention. Early in January 1855 Mueller explored the Snowy Mountains[175] where he recorded:

> I ascended all the most prominent heights, including Mt.Koskiusko (sic). I found the distribution of the Alpine plants during this excursion to be more general, as I anticipated...Of most of the new species I procured a good supply, which I had, however, a great difficulty to keep dry against fog, and afterwards, in the lower ranges, against rain...[176]

Having made his intensive botanical survey, Mueller "wandered for days over the Snowy Mountains without being able to add a single species to the collections".[177]

Six months later[178] Mueller called at Sydney on his way to Moreton Bay. He visited the Botanic Gardens, where one of Moore's staff, William Vernon[179], provided assistance which was acknowledged in the way one botanist deemed appropriate for another.[180] In September 1860,

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175 Mueller usually followed the Rev. W.B. Clarke in referring to the area as the Munyang Mountains. See photograph, Chapter III,p.227.

176 Mueller to Wm. J. Hooker, 22 Jan.1855, in Hooker : Journal of Botany,1855,pp.235-236.

177 ibid.

178 July 1855.

179 For William Vernon (1811-1890), one-time gardener to Lord Cornwallis, Botanic Gardens assistant, and gardener to T.S. Mort, see Proc.Roy.Soc.NSW,1908,pp.126-127. Bentham acknowledged a few of his Port Jackson specimens. See Appendix I.

180 Mueller later named a species of Lady's Slipper, Hybanthus vernonii "to express a mark of acknowledgement for much aid, which in forming collections of plants in the classical fields around Port Jackson, he experienced from Mr. W. Vernon of Sydney". F. Mueller : The Plants Indigenous to the Colony of Victoria, Melb.,1860-1862, pp.223-224. Mueller collected around Sydney, Botany Bay and Parramatta before proceeding to Moreton Bay on 18 July 1855.

Mueller visited Twofold Bay, Mt. Imlay, Cape Howe and the Genoa River. Early in January 1874 he returned to the Snowy Mountains to explore the country between Mt. Kosciusko and Towong on the Upper Murray. Mueller's final visit to N.S.W. was in September 1878 when he spent about three weeks in the Riverina, collecting around the Murray, Lachlan and Murrumbidgee Rivers.[181]

Mueller's incalculable influence upon Australian botany was due not only to his own extensive travels[182], to his astonishing store of botanical material and knowledge and to his prolific output of published works[183], but also to the enormous correspondence he maintained with collectors, observers and enquirers--amateur and professional--throughout the continent, and indeed the world. Utterly dedicated to his work, Mueller appreciated the possible value of every specimen and snippet of information supplied to him by his army of amateurs whom he attracted and to whom he ceaselessly expounded knowledge and relayed thanks in a spirit and language which made the correspondence intensely

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181 Records of these visits have been derived, with the kind aid of Mr. J.H. Willis, Assistant Government Botanist of Victoria, from Mueller's Annual Reports to the Victorian Parliament and from plant labels and correspondence preserved in the National Herbarium, Melbourne. It appears that Johann Georg Luehmann (1843-1903) Mueller's principal assistant for 30 years was another visitor, for some of his N.S.W. specimens are preserved at Oxford. (Clokie : Herbaria of Oxford, p.203). As he worked within the shadow of the master, Luehmann's work has not been fully appreciated. For Luehmann, see Vic.Nat., 1908, p.110.

182 It has been estimated that Mueller must have travelled some 20,000 miles in Australia (Benth.: Fl.Aust., I, p.12*; also Proc.Linn.Soc. NSW, 1900, p.779). On Gregory's expedition alone, he discovered about 800 species of plants hitherto unknown in Australia. Mueller was always concerned about the fate of Leichhardt and was pleased to join this expedition in the hope of ascertaining something about his countryman's disappearance.

183 Mueller is credited with at least 800 botanical works--books, pamphlets and articles--in which he described and named about 2,000 Australian species.

personal and unique. His output of quaintly-worded letters is believed to have grown to some 3,000 annually[184] and mail was delivered to his home by the bag. Mueller made each correspondent feel that he was contributing something worthwhile to a science which was not only intrinsically interesting, but also nationally important. The promptness with which Mueller received and answered his letters reflects credit not only upon the postal services of the time but also upon this professional botanist's sense of duty.[185] Mueller's early training in chemistry enabled him to relate his strictly technical botanical science to the needs of trade and commerce, agriculture and industry, pharmacy and medicine. He was also concerned to relate it to the lives of the people of his adopted country.

Had Mr. Hall but known it, the "travellers" had been very busy in the name of "the science of Botany".

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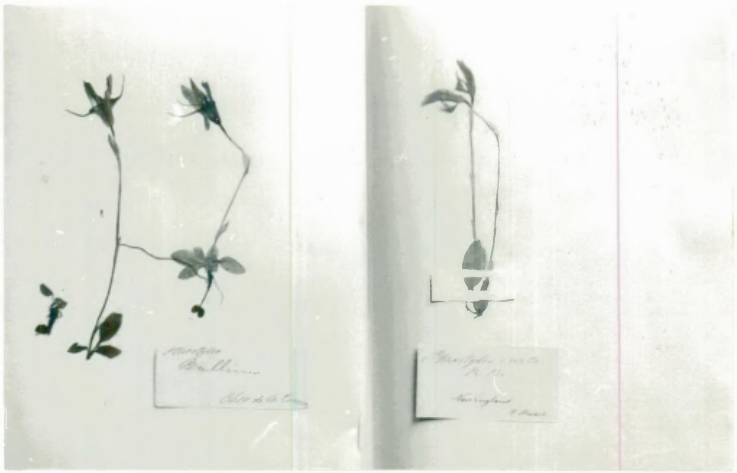
184 Aust.Encyc.,6,p.191. The bulk of Mueller's incoming correspondence has been destroyed, much of it in 1935 when the old Melbourne Herbarium building was demolished. A bonfire of "rubbish" reputedly burned for days. The comparatively few letters still extant date chiefly from the late 1870s, 1880s and early 1890s, and were preserved because they had been filed with the plant specimens to which they referred. N.S.W. correspondents included: Edward Pearson Ramsay (Sydney, 1866); George P.Day (Trida Stn., Mossgiel, 1878); D.Jones (Sydney,1879); Charles Hugh Fawcett (Richmond R.,1879,1883,1885); Robert David FitzGerald (Survey Office, Sydney, 1873,1882,1890); E. Reader (Tilba Tilba, 1880); A.N. Grant (Hillston, 1881); Charles E. Barnard (Gulgong, 1881); Antonio de la Camara (Ballina, 1881); Edwin Daintrey (Sydney, 1882, 1883); Edwin Haviland (Sydney, 1883); Augustus Rudder (Balmain, and Booral, 1883,1885,1886); A.R. Crawford (Walcha, 1884); D. Rorley, (Tamworth, 1884); Thomas Whitelegge (Surry Hills, 1886); Charles Moore (Sydney, 1887); Henry Deane (Sydney, 1887); Jemima F. Irvine (Silverton, 1889); John McKay (Clover Ck.,via Bourke, 1890); Georgina King (Homebush, 1894); Annie H. Edwards (Richmond R., 1894); Harriet Scott (Ferndale, Double Bay, N.D.).

185 It should be noted that 4,220 of Mueller's Australian specimens dating from 1863 are preserved in the British Museum. Collections of Brit.Museum : Geo.Murray : Botany,p.170.

SPECIMENS FROM MUELLER'S CORRESPONDENTS

Greenhood Orchid, Pterostylis curta. Left: two specimens collected by Chevalier Antonio de la Camara at Ballina about 1880. Right: two specimens collected by Charles Stuart, near Tenterfield between 1860 and 1875.



Dampiera scottiana (now united with D.stricta) Left: the type specimen collected near Sydney by Harriet Scott, 1880. Right: collected by Wm. Woolls near Sydney about 1880. Mueller named the species "in honorem ingeniosae inventricis, quae e regionibus secus flumen Hunteri plures plantas rariores ad nostras collectiones contribuit..."

Bladder Ketmia, Hibiscus trionum. Left: collected by H. Smith "between Balranald and Maude on the Murrumbidgee", March 1872. Right: collected by Herman Beckler on the Clarence River. Used by Bentham.

Photos: L.G., Melbourne Herbarium, Jan. 1967.

Plants for Pleasure, Plants for Profit.

Although a careful examination of the bush was obligatory for many settlers[186], there is ample evidence that botanical investigation for its own sake gave great pleasure to a wide variety of people, some of whom recorded the fact with enthusiasm.[187] Bush plants which afforded particular satisfaction were singled out--for example, the Waratah or Native Tulip, Telopea speciosissima[188]; the Gigantic or Gymea Lily, Doryanthes excelsa[189]; the Fuchsia Heath, Epacris longiflora[190] and other brilliant-flowered species growing especially in the heathland and sandstone country near the coast.[191]

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186 See Chapters III and IV.

187 See for example, Hodgson : Reminiscences,p.127, quoted in Chapter III,p.313, and Henderson : Excursions,II,pp.238-239: "The endless variety may be imagined when...after having been engaged for five or six months in forming a hortus siccus of the plants in my neighbourhood, I still stumbled on some new one every day".

188 See for example, Bennett: Gatherings (1860),p.357 where the increasing rarity of this plant "around Sydney" is noted, and Willoughby : Australian Pictures (1886),p.201 : "The warratah (sic)...is one of the mostpopular of the wild flowers of New South Wales." Nevertheless in the 1840s it was recorded that "of the fine stems of this beautiful plant they make the best Baskets in Sydney". George Suttor to Linn.Soc.of London, 20 June 1843. ML. FM4/2699.

189 See for example, Bennett : Gatherings,p.339 :"...a magnificent plant...a plant of great beauty, and very tenacious of life"; Jameson : NZ,SA and NSW,(1842):"the gigantic lily, said to be the chief floral ornament of the Australian wilderness"; Martin : Austral-asia (1839);p.125: "The New Holland Lily (Doryanthes excelsa) is one of the most stately of the nobiles of the vegetable kingdom..."; Henderson : Excursions,I (1851),pp.89-90: "the noblest flower of Illawarra, perhaps of New Holland, the gigantic and beautiful lily, which...reigns the sovereign of all Flora's train"; Hughes : Australian Colonies (1852): "Amongst the most remarkable is the doryanthes, or spear-flower, commonly called the gigantic lily...which is one of the most splendid productions of the botanical kingdom".

190 Barron Field's favourite flower which "gladden'd...above the rest". See "Botany-Bay flowers" in "First Fruits of Australian Poetry" reprinted in Field : Geog.Memoirs,pp.487-494.

191 See also Chapter III,pp.174-175.

Botanical investigation at this level usually involved one or more well-defined activities :

i. seeds of plants deemed suitable for gardens were collected and sown, and seedlings and mature specimens of such plants were removed from the bush and transplanted.

ii. specimens of many species, regardless of horticultural possibilities, were collected (ideally in bud, flower and fruit), pressed, dried and preserved as herbarium specimens for permanent storage, for exchange with other amateurs or for presentation to professional botanists and institutions.

iii. plants with some particular appeal to the individual were sketched or painted or (in the latter part of the century), photographed.

iv. plants suspected of possessing commercial, pharmaceutical or other beneficial properties were sought for experimental work, from which, in some cases, additional pleasure, and occasional profit, might be obtained by publicly displaying the results in the great exhibitions of the latter half of the century.

These activities were very largely the province of the amateur, who was often led to seek a frame of reference which would enable him to record his work, to describe it to others, and to recall it for his own benefit. Such a frame of reference was most effectively gained through the identification of species (either by botanical or vernacular names, but preferably the former) and through a knowledge of the general principles of taxonomy. The degree of proficiency in such knowledge determined the nature of one's contribution to field botany. The work of some of these amateurs was outstanding. Not only was it faithfully and painstakingly performed, but it was recorded in a scientifically meaningful way for the instruction of others in private correspondence, public lectures and published works. The small, but growing number of professional botanists often encouraged and acknowledged the valuable work of the amateurs, although at times there was some animosity.[192]

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192 See for example, the dispute between Charles Moore and the competent amateurs in Chapter V.

The abovementioned four kinds of activities will now be considered with the four groups of investigators associated with those activities -

i. horticulturists and nurserymen;
ii. collectors;
iii. artists, and
iv. experimentalists.

i. Horticulturists and Nurserymen

Many British settlers demonstrated their love for a garden in their new surroundings. Before the feeling of repugnance for the bush was generally overcome,[193] a "garden" meant beds of roses, tastefully enhanced by lilies, hollyhocks and violets, with orchards of fruit trees, groves of larches, birches, planes, elms and oaks, shrubberies of magnolias and camellias, and hedges of hawthorn, all set out in good order.[194] Most great gardens established by the 1860s in the vicinity of Sydney were largely, if not entirely of this "English" type[195], but some colonists were pointing to alternative, or more comprehensive

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193 See Chapter III passim.

194 See for example the plants listed for the garden of William Pitt Faithfull at 'Springfield', near Goulburn in the 1830s and 1840s. (Faithfull Papers, ANL,1146/1). See also the list of "English Forest Trees" (oak, sycamore, birch) auctioned in Sydney in 1838 (SMH, 17 Oct.1838).

195 e.g. the gardens visited by members of the Horticultural Society, 1864-1871 . H.S. Russell, "The Ranges", Mosman; Joseph Thompson, "Tor Cottage", Potts Point; Thomas S. Mort, "Greenoaks", Darling Point; J.R. Young, "Hereford House", Glebe Road, Sydney (garden previously established by Thomas Woolley, Sydney ironmonger); Henry Prince, "Craigend", Woolloomooloo; John Le Gay Brereton, "Osgathorpe", Gladesville; Thomas Walker, "Yarralla", Concord; J.D. Maclean, "Quiraing", Double Bay; Sir Wm. Montagu Manning, "Wallaroy", Woollahra; Augustus Morris, "Elystan" (formerly "Moore's Hall"), Woollahra; Hon.Robert Towns, "Cranbrook" (formerly the seat of Robert Tooth), Rose Bay; G.A. Bell, "Lathallan", St. Leonards; Henry Moore, "Barncleuth", Woolloomooloo; W.Wright, "Drummoyne", Parramatta Rd., near Sydney; A.T. Holroyd, "Sherewood Scrubs", between the Great Western Rd. and Fairfield; M.C. Stephen, "Quambi", Woollahra; Anthony Hordern, "Retford Hall", Darling Point; J.K. Chisholm, "Gladeswood", Narellan; Thomas Barker, "Marylands", Bringelly. See Horticultural Magazine, Syd., Vols. I-VIII, 1864-1871.

horticultural taste. In the late 1830s, for example, members of George Innes's household at Glen Alice, Capertee, "transported many varieties... to...garden and shrubbery" from the bush. Some plants were flourishing when the family left the property in 1841, taking drawings of "many lovely wild flowers" with them.[195] As early as 1836, Thomas Shepherd, pioneer nurseryman of Sydney, had urged colonists from his very grave[196] to appreciate the value of indigenous plants when planning a garden :

> No person of taste who has seen the rocks which border ...Port Jackson, and the beautiful trees, flowering shrubs, rock lilies, and other plants growing indigenous there in masses and groups, unequalled by the art of man, but must admire them. No rocky scene in England or Scotland can be compared to it.

Yet,

> such trees are not wanted at Port Jackson...devastation has taken place nearly throughout the Colony. I am astonished at the proceeding and can only ascribe it to ignorance, or to a misapprehension of its probable consequences and expense.[197]

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195 Herman : Annabella Boswell's Journal,p.12. Moving to Lake Innes, Port Macquarie in Jan.1843, Annabella Innes (later Mrs. Patrick Douglas-Boswell) and her cousin rejoiced "over many wild flowers" and "resolved to paint at least one wild flower every week, beginning with the charming little blue commelina..." i.e. Wandering Jew, Commelina cyanea . The "library and...breakfast table" were decorated with "many fine blandfordias and some ipomoeas" on occasions. i.e. Christmas Bells, Blandfordia grandiflora and Goat's Foot, Ipomoea brasiliensis . op.cit., pp.73,76,78. One of the tasks in the garden, was to tend the "Lantana Bower, but so many young plants have sprung up they quite spoil the place, and are likely to become a nuisance." (31 Mar.1848, op.cit.,p.162). The ruins of Lake Innes Cottage are to-day largely enveloped by thickets of Lantana camara, a native of South America.

196 Shepherd delivered the first of his seven lectures on landscape gardening "before a crowded and highly delighted audience" in the Sydney Mechanics School of Arts, June 1835. He died three months later, and the lectures were published posthumously.

197 T. Shepherd : Lectures on Landscape Gardening in Australia, Syd., 1836,p.78.