

*NOTHOFAGUS* COLLECTIONS ASSOCIATED WITH THE FRENCH SETTLEMENT  
OF AKAROA

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Etienne Raoul (1846) in *Choix de Plantes de la Nouvelle-Zélande* lists plant names under their families for which there were published records of their occurrence in New Zealand up to that time. Most of these species names were for native plants, but the list also includes introduced species. Consequently this is a very useful record in tracing the history of plant introduction and naturalisation in New Zealand.

Another valuable feature of Raoul's list is that he records specimens collected in New Zealand by J.R. and G. Forster in the course of Captain James Cook's second voyage to the country in 1773, and sent to the Herbarium of the Natural History Museum in Paris. These specimens are of key importance in the typification of the New Zealand species for which the Forsters published the first botanical binomial names. The Forster specimens were distributed to several herbaria in Europe without a record of what was sent where. This has complicated the selection of type specimens in the ongoing process of the classification and taxonomic description of New Zealand plants.

In his list Raoul also marks those plants that he had collected in New Zealand. His collection included 59% of the flowering plants for which there were published records at that time. Raoul's list does not record where he collected his plants. Consequently, by reference to the list alone, it is uncertain whether they were collected in the Bay of Islands, which he visited for three short periods in 1840, 1841 and 1843, or at Akaroa where he was the French naval surgeon for most of the time from August 1840 to January 1843. However, the Raoul specimens in the Paris herbarium have labels that record whether they were collected in the Bay of Islands or Akaroa (Harris & Cadic, 1998).

A fourth set of entries in Raoul's list is the Maori names of New Zealand plants that he recorded. For example his listing for the native tree nettle is as follows:

### Urticeae

\**Urtica ferox*, Forst. Prodr., n°346; Willd. Sp. Pl. 4, p. 352; A. Rich., l. c., p. 354; A. Cunningh., Ann. of nat. his. 1, p. 214. Vulgò *Ogna-wa*. The \* indicates that it was collected by Raoul and deposited in the Herbarium of the Natural History Museum, Paris.

I checked the details of this entry with Elizabeth Edgar with reference to the Annals of Taxonomic Research on New Zealand Tracheophyta first published in Volume I of the *Flora of New Zealand* series (Alan 1961). My expansion of Raoul's entry is as follows:

The binomial name *Urtica ferox* was first published by the German botanist J.G.A. Forster (1754-1794) in *Florulae Insularum Australium Prodrromus* published in Gottingen, Germany in 1786. The Annals notes that this publication includes very brief descriptions, apparently by A. Sparmann (1748-1820), servant to the Forsters, of 141 species for New Zealand, and adds 23 names without description. J.G.A. Forster, with his father J.R. Forster (1729-1798), and A. Sparmann, collected plants at Dusky Bay and Queen Charlotte Sound during Cook's second voyage in 1773. Note that the younger Forster is usually distinguished from his father in allocation of authorship to species names as G. Forster or Forst. f.

The n°346 is a reference number for the specimen of *Urtica ferox* collected by the Forsters that is in the Herbarium of the Natural History Museum, Paris. Willd, Sp. Pl. 4, p. 352; indicates that the name *Urtica ferox* was entered by K.L. Willdenow (Germany, 1765-1812) in supplement 4 of Linnaeus' (C. von Linné, Sweden 1707-1778) *Species Plantarum*. The species was also listed with an expansion of the Forster description by Achille Richard (France, 1794-1852) in *Essai d'une Flore de la Nouvelle Zélande* published in Paris in 1832. This publication describes some 260 species collected by P.A. Lesson (France 1805-?) during the voyages of the French navigators L-I. Duperrey (1786-1865) and J.S.C. Dumont d'Urville (1790-1842) in 1824 and 1827. As further indication that this hairy-stinging plant caught the attention of the early botanical explorers of New

Zealand, a description of it was given in 1838 by A. Cunningham (England, 1791-1839) in *Annals of Natural History* 1.

Finally the vulgar or common name *ogna-wa* records how Raoul heard Maori pronounce the name of the plant we now give the common name *onga onga*. Raoul's attention to Maori names is emphasised by his use of them in the binomial names he gave to the species he described. The most apparent of these is *Discaria toumatou*, the specific name of which derives from Raoul's record of the Maori name *toumatoukouru*, from which the current common name *matagouri* also derives.

The expansion of the listing of *Urtica ferox* by Raoul serves to illustrate how much information it contains or can lead on to. The other reason why I have used this listing is because it shows the limited knowledge about the southern beeches at that time compared to a less important species such as *Urtica ferox*.

### **Cupuliferae**

*Fagus fusca*, Hook. fil. Ic. Pl., t. 630

*F. Solandri*, Hook. fil. Ic. Pl., t. 639

*F. Menziesii*, Hook. fil. Ic. Pl. t. 652

*F. cliffortioides*, Hook. fil. Ic. Pl. t. 673

The important thing to note for this entry is that there is no indication that Raoul collected any of these beeches while he was in New Zealand. The four names were first published by J.D. Hooker (England, 1817-1911) in *Icones Plantarum* in 1844. This publication was established by J.D. Hooker's father, W.J. Hooker (England, 1785-1865), and was characterised by illustrations of the species it included. The abbreviation t. refers to the plate numbers in the publication including the four southern beech species.

Considering the importance of the southern beeches in the vegetation of New Zealand it is surprising that they were not given binomial names until 1844. This was the year after Raoul returned to France. Raoul consulted with J.D. Hooker in the course of preparing *Choix de plantes de la Nouvelle-Zélande*. The *Choix* includes Hooker's description of *Raoulia australis* and description by him and J.H. L veill  (France, 1796-1870) of species of mosses and liverworts. Because of this working contact between Raoul and J.D. Hooker

it is not unreasonable to think that they might also have had a mutual interest in the southern beeches and talked about them.

The genus *Nothofagus* was defined in 1850 by C.L. Blume (Netherlands, 1796-1862) and the generic recombinations of the four taxa described by Hooker in 1844 were made by A.S. Oersted (Denmark, 1816-1872) in 1873. Missionary and botanist William Colenso (England, 1834-1899) was later to define hard beech as a taxonomic entity, and the current combination for this species, *Nothofagus truncata* (Col.) Ckn. was made by Leonard Cockayne (England, 1855-1934) in 1926. Finally, A.L. Poole (New Zealand, 1908- ) in 1958 reduced Hooker's *Fagus cliffortioides* to varietal level to give the combination *Nothofagus solandri* var. *cliffortioides*.

So it can be seen that the taxonomic treatment of the New Zealand beech species has been an international affair, although it is probably reasonable to claim both Colenso and Cockayne as New Zealanders. Their very significant contributions to New Zealand botany were made while they were resident here, and both died in New Zealand.

In the course of the Raoul Symposium Colin Burrows became intrigued as to why *Nothofagus* species were not amongst the material that Raoul had collected and deposited in the Paris Herbarium. One possibility was that Raoul had collected and deposited *Nothofagus* specimens but through an oversight had not included them in the species list published in the *Choix*.

An indication that Raoul encountered *Nothofagus* is given in an extract from a report made by Captain Lavaud, Raoul's naval commander, in November 1840. The translation of the extract is given by Peter Tremewan in his historical account of Raoul at Akaroa presented at the Raoul symposium (Tremewan, 1998) and is repeated here.

“Mr Raoul is very busy with his botanical work ... In his research in the forests near Akaroa he has encountered the following species of resinous trees, although their resinous content is very small: kahikatea, matai, rimu, totara, tawai and miro”.

In commenting on the trees listed in Lavaud's report Tremewan (1998) writes – “Tawai is the general name for the New Zealand beeches (*Nothofagus* spp.). The particular species,

which Raoul could have collected at the head of the Otanerito valley, were almost certainly red beech (*N. fusca*) and black beech (*N. solandri*).”

When visiting to Europe in July and August 1998 my wife Deidre and I spent four days in Paris sightseeing and visiting the art galleries, museums, cathedrals and monuments. On the final day of the visit, on 5 August 1998, we visited the Jardin des Plantes in which the Paris Herbarium, Natural History Museum, stands. On impulse I decided to make an unannounced visit to the Herbarium to see if I could find any *Nothofagus* specimens collected by Raoul. I anticipated the Herbarium could be closed as it was the peak of the summer holidays for Parisians.

Although the Director of the Herbarium, Professor Phillipe Morat was on holiday one of his administrative assistants was present. Through her I found that Jacque Florence, a taxonomist at the herbarium, was one of two professional staff at the herbarium that day. I had met Jacque in 1990 when he visited New Zealand in the course of his research on the flora of French Polynesia. This was fortunate, as Jacque by knowing who I was, knew I was reliable enough to be taken into the innards of this enormous Herbarium, which is normally out of bounds to visitors. He showed me the small cabinet containing the *Nothofagus* specimens and left me to work through them.

The usual procedure for visitors to this Herbarium is for them to locate themselves in a laboratory where they are serviced by technicians. Visitors request the material they require and the technicians use their knowledge of the herbarium layout to fetch it. This was the procedure when I spent time at the Herbarium in 1989 looking for type material of New Zealand plants described by Raoul (Harris & Cadic, 1998) and also Achille Richard.

What I found was both disappointing and exciting. It was disappointing that there were no specimens collected by Raoul or by his contemporary at Akaroa, Pierre Joseph Sainte-Croix de Belligny. Belligny came to Akaroa in August 1840 with the French emigrants on the *Comte de Paris*. He was appointed by the King's Botanical Garden in Paris to act as its travelling correspondent for the scientific exploration of New Zealand. While Belligny did collect botanical specimens, and there are a good number of these in the Paris Herbarium, he was diverted from his scientific role when he became heavily involved in the administration of the French settlement at Akaroa (Tremewan 1990).

However, it was exciting to find a *Nothofagus* specimen collected by Jacques Hombron (1800-1852). Margaret Bulfin (nee Simpson) gave a brief biographical note about Hombron when she considered collections made by Dumont d'Urville's expedition when it stopped at Akaroa for 9 days from 8 April 1840 (Simpson, 1984). Hombron was the senior surgeon on the *Astrolabe*, and Margaret records that he shared the responsibility for botanical collection on d'Urville's expedition with Honoré Jacquinot (1814-?). Jacquinot was the junior surgeon on the *Zélée*, the other vessel that took part in the expedition. His older brother, Charles Hector Jacquinot, was the commander of the *Zélée* (Wright, 1955).

Margaret Bulfin also considered the possibility that d'Urville himself may have collected specimens during his visit to Akaroa. This was prompted by the entry in d'Urville's diary for 10 April 1840 where he records visiting an Englishman named Cooper at his house which was located a mile and a half from the shore and to the south of Akaroa village. "I spent a pleasant day in the neighbourhood of this little farm round which there was already a good stretch of pasture. Close by I found a pretty little stream on whose banks I was able to gather a goodly number of botanical specimens."

When I visited the Paris Herbarium in 1989 I was able to partly satisfy Margaret's curiosity about what plants had been collected in the course of d'Urville's visit to Akaroa. I found several specimens collected by Hombron but none collected by either d'Urville or Jacquinot. However, as well as those collected by Hombron, there were also specimens collected by Le Guillou (Harris & Cadic, 1998). Elie-Jean-François Le Guillou \*1806-?) was senior surgeon on the *Zélée* (Dumont d'Urville, 1842-1846). He was knowledgeable about natural history, and also sketched well (see Appendix 1).

Details on Hombron's specimen of *Nothofagus* are as follows:

Herb. MUS. PARIS

*Fagus fusca*. Hook. f. icon. t. 630

Akaroa-Presqu'île de Banks, côte S. E. de la  
Nouvelle Zélande.

Voyage de l'*Astrolabe* et de la *Zélée* 1838-1840.

M. HOMBRON. 1841.

Note that the label was printed apart from the species name. The authority and reference for the handwritten name are the same as given for *Fagus fusca* in Raoul's listing in the *Choix*. A comparison of the handwriting of the species name with that of Raoul's (see reproduction from Raoul's medical report, Tremewan, 1998) suggests that it is not that of Raoul. This handwriting is the same for the species name on four other herbarium sheets of *Nothofagus* in the Paris collection which have following printed label.

HERB. MUS. PARIS

*Fagus fusca* Hook f.

(D)

Voyage de M. Bérard. Plantes recueillies  
par M. Védél. 1847 (Nouvelle-Zélande).

I had only two shots left in my camera when I was in the Herbarium. Consequently I just have photos of the label of the Hombron specimen without any part of the specimen, and a photo of one of the sheets with Védél's which includes part of the *Nothofagus* specimen. I do not know what the handwritten (D) on the label signifies, and cannot recall if it is on the other Védél sheets.

It seems that the collector, M. Védél, was Jean-Jacques Védél, a trainee officer similar to a midshipman on the *Rhin*, commanded by Captain August Bérard (Harris & Cadic, 1998). The *Rhin* was stationed at Akaroa from January 1843 to April 1846. It replaced the *Aube*, commanded by Captain Lavaud and it was on this ship that Raoul returned to France to prepare and publish the *Choix*. The date 1847 on the Védél labels probably indicates when his specimens were mounted and deposited in the Paris Herbarium.

The lack of detail of the locality of Védél's collections is frustrating. The *Rhin* did visit ports other than Akaroa in New Zealand (Tremewan, 1990) and *Nothofagus truncata* (hard beech) could have been gathered if Védél collected when the ship visited Wellington. At that time *N. fusca* and *N. truncata* were not distinguished taxonomically. The leaves on the Védél specimen for which I have a photograph are characteristic of red beech, *Nothofagus fusca*. Consequently from what we know of the distribution of *Nothofagus* species and the

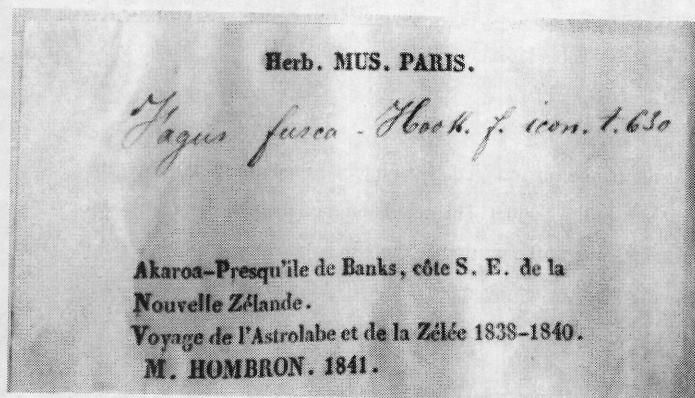


Fig. 1 Label for a Hombron specimen of *Nothofagus fusca* from Akaroa (in 1840) in the Herbarium, Natural History Museum, Paris.

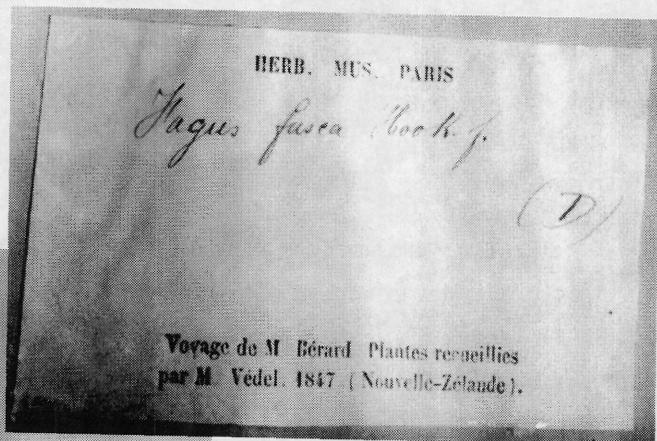
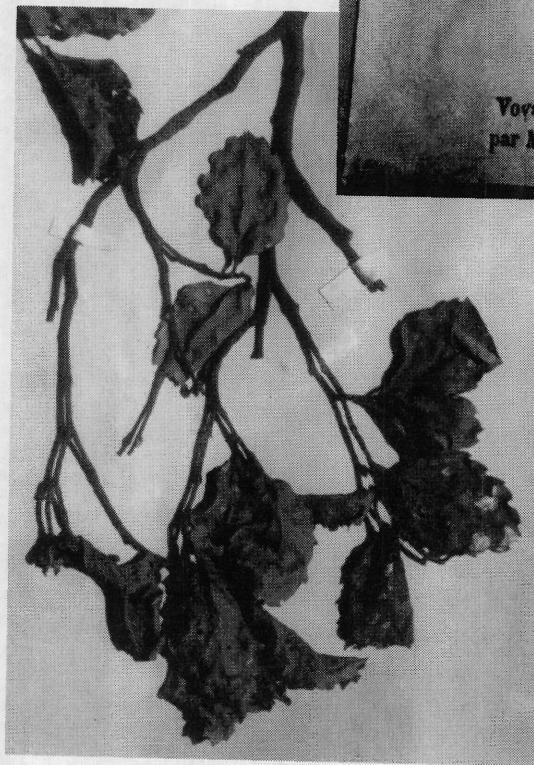


Fig. 2 Label and part of a specimen of *Nothofagus fusca* collected somewhere in New Zealand (but most probably at Akaroa) by a young officer named Védel, from the Rhin.



movements of the *Rhin* in New Zealand it seems likely that the Védél *Nothofagus* specimens are from Akaroa.

After noting the details of the Hombron and Védél specimens I made hasty notes on the other New Zealand *Nothofagus* in the cabinet. The details on the labels of these follow. I had some difficulty in reading some of the writing so there may be some errors in what I record here, as well as omissions or my abbreviations.

1.

*Nothofagus cliffortioides* Hook f.

Nvlle Zelande M. Hector

Voyage de M. Tilhol en 1875

Recu le 10 Janvier 1876

2.

*Fagus fusca*

Nvlle Zelande, Collections donné par Sir William Hooker 1854

Ex Herb. Hook.

*Fagus fusca*, Hook

Hab. Nov. Zeland. Coll. Sinclair

3, 4.

(I have not noted a species name)

Coll. E. Huillson (?) 1921

Lake Wakatipu

5, 6.

*Fagus Menziesii*

M. Fihol 1875, Plantes donés par M. Kirk

Recu le 10 Janvier 1876

Rimutaka Mountains

There were, as well, a few Australian and South American *Nothofagus* specimens in the cabinet that I did not have time to note. Thinking that Deidre might be getting anxious

about the length of my absence in the Herbarium I hurriedly left after scribbling my notes. I found her unperturbed enjoying the plantings of the Jardin des Plantes on a warm, sunny Parisian day.

There is a very large planting of herbaceous and smaller woody species, in taxonomic order, in the Garden adjacent to the Herbarium. Looking for New Zealand plants in this collection I found a dead plant of *Hebe speciosa*, a healthy plant of *H. pinguifolia*, and a big shrub of *H. traversii*. This was a good measure of the low level of interest in New Zealand plants in Paris, their poor ability to survive through the winter in the city being the main reason for this.

However, New Zealand plants have persisted for about 225 years in the Paris Herbarium, beginning with the Forster collections. Most importantly for New Zealand plant taxonomists, the Herbarium has maintained the Raoul specimens through the wars and upheavals that France has undergone since 1840. The loss of French interest in New Zealand plants since the abandonment of the Akaroa settlement is illustrated by the small number of *Nothofagus* specimens collected since that time, with the most recent collection in 1921.

The question as to why both Raoul and Belligny did not collect *Nothofagus* at Akaroa remains unanswered. Was it because it was commonplace and he was intent on finding and describing new plants? It is a common feature of herbarium collections that rare species are disproportionately represented in the collections compared to widespread common species. An analysis of what Raoul collected and the frequency with which plant species occur at Akaroa could point to selective rather than chance omission of species. Another possibility is that the tawai which Lavaud wrote about was some other species, the identity of which we will probably never know.

The brief search in the Paris Herbarium brought unexpected knowledge about collections made during Dumont d'Urville's visit to Akaroa, in 1840. Dr Jacques-Bernard Hombron, surgeon on the *Astrolabe*, and Dr Elie-Jean-François Le Guillou, surgeon on the *Zélée*, have the distinction of being the first botanists to have collected plants in Canterbury. These two French gentlemen preceded Etienne Raoul at Akaroa by a few months, so perhaps we must regard them as the true founders of botanical science in our region.

## References

- Alan, H.H. 1961. *Flora of New Zealand, Volume I*. Government Printer, Wellington.
- Dumont d'Urville, J.S.C. 1842-1846. *Le voyage au Pôle Sud et dans l'Océanie, Historique*. Paris.
- Harris, W., Cadic, A. 1998. The Raoul collection in Paris and “*Choix de plantes de la Nouvelle-Zélande*”. In: Burrows, C.J. (ed.) *Etienne Raoul and Canterbury Botany 1840-1996*. Canterbury Botanical Society – Manuka Press, Christchurch. Pp. 35-51.
- Raoul, E.F.L. 1846. *Choix de plantes de la Nouvelle-Zélande*. Fortin, Masson et Cie, Paris.
- Simpson, M.J.A. 1984. The contribution of the French to the botany of Banks Peninsula. *Royal Society of New Zealand Bulletin* 21: 65-70.
- Tremewan, P. 1990. *French Akaroa*. University of Canterbury Press, Christchurch.
- Tremewan, P. 1998. E.F.L. Raoul at Akaroa: an historical background. In: Burrows, C.J. (ed.) *Etienne Raoul and Canterbury Botany 1840-1996*. Canterbury Botanical Society – Manuka Press, Christchurch. Pp. 23-31.
- Wright, O. 1955. *The Voyage of the Astrolabe – 1840*. A.H. & A.W. Reed, Wellington



The corvettes *Astrolabe* and *Zélée* in danger, “Bloody Rocks”, Moluccas Is., 1840