and (most of the time) moisture facilitating the extensive and lush growth of a range of species, including the mosses *Leptostomum inclinans* (growing lithophytically), the ubiquitous *Hypnum cupressiforme* and *Thuidium furfurosum*, with *Ptychomnion aciculare*, and *Campylopus introflexus*, and occasionally the striking *Pulchrinodus inflatus*, with the liverworts *Lepidolaena taylorii*, *Plagiochila gregaria*, *P. bazzanioides*, *P. fasciculata*, rarely *P. deltoidea*; (which was observed on Rangitoto for the first time on Saturday); *Jamesionella colorata*, and *Cuspidatula* again. Smaller liverworts of the forest edge that were seen on Saturday include *Cephaloziella* sp. aff. *pulcherrimum*, *Temnoma palmatum* s.lat., and *Lepidozia* sp. *indet* (all new records).

Bark provided *the* opportunity to observe a completely different suite of species. *Frullania squarrulosa*, *Mastigolejenuea (Tylimanthus) anguiformis*, and *Archilejuenea olivacea* were observed on the outer branches of pohutakawa. Unfortunately the bark was wet, which meant the smaller epiphytes, such as *Lejeunea*, and its allies, and smaller *Frullania* were obscured. However, in forest on the cinter cone, *Harpalejeunea latitans*, *Cheilolejeunea* sp. *Acrolejeunea* sp. *Lejeunea flava* and *Lejeunea* sp. were collected growing as epiphytes on the much larger *Porella elagantula*, itself epiphytic on *Myrsine australis*, just to illustrate the amazing variety of the tiny epiphytes that while there, could not be observed on the day. The epiphytes of low tree trunks tend to be utterly different to those growing in the relatively dry canopy, and this was again the case on Rangitoto. *Bazzania adnexa* var. *adnexa*, *B. hochstetterii* (new record), *Chiloscyphus* spp., and *Lepidozia* sp. being common in this habitat.

Being so frequently close to the ground also facilitated close observation of flowering *Pterostylis alobula* (abundant), *P. trullifolia* (few), and *Acianthus sinclairii* (abundant), as well as the filmy fern *Hymenophyllum cupressiforme.*

Surprisingly, most members of the trip were able to keep pace with John, who in certain circles has the reputation of being something of a whirlwind in the field, keeping pace with him requiring a firm grip of his coat-tails (we actually got to the Parade ground for lunch!). The day was also completed without too many grazes or scratches on the knees of the participants, including those of the writers, something of an achievement considering his reputation when it comes to liverworts and rocky habitats.

Rangitoto Island - 1866 Extent Of Vegetation, 1887 & 1913 Fires

Mike Butler

The following Rangitoto details are taken from early Auckland newspapers and may be of interest with regards to the debate over the historical vegetation cover of the island.

One school of thought is that Rangitoto Island had little vegetation cover in early times. However these accounts tend to support recent studies such as Andrea Julian's "The Vegetation Pattern of Rangitoto" (1992) Auckland University Thesis, that there were significant areas of shrub-land from the earliest times.

The 1887 fire may explain the current prevalence of manuka/kanuka on the eastern slopes of Rangitoto Island.

"...Beyond appears in bold relief, the three forest-clad peaks of Rangitoto..."
(Southern Cross June 24, 1843. Sales by Auction.)

"...Odd circular islets are on the right and left, while the island of Rangitoto, with its thickly timbered peaks, is the highest and chief object in view..."
(Daily Southern Cross June 27, 1864. To Auckland via Manukau.)

"...Other water-colours depict the signing of a duplicate of the Treaty of Waitangi, at the entrance to the Tamaki River, in 1840, and a panorama of Auckland Harbour, from Rangitoto, painted in 1841 by Colonel B(un)b(e)ry, of the 80th Regiment. This is interesting as being the first record of an ascent of Rangitoto. Trees are shown growing in the crater, but these gradually disappeared, partly because it was a practice of early Aucklanders to light a fire to show their friends they had really reached a certain point..."
(N.Z. Herald November 10, 1909. Early Auckland.)

"A WEEK'S EXCURSION, NORTH AND WEST OF AUCKLAND By E. (*sic*)

Being desirous of ascertaining how much of the country could fairly be seen during a week's vacation, I left Auckland in a firewood boat, bound for Matakana, there being no steamer engaged on a pleasure trip, and took with me a blanket, some bacon, and some biscuit, with a tin can for boiling tea.
The cutter anchored under Rangitoto reef, there being rather a stiff, though fine "northerly buster," as the skipper called it, blowing "batt end foremost," with a sea that a ten-ton craft could make nothing against.
We therefore made all snug on board and landed on Rangitoto, taking with us a bottle of water and our dinners.
The appearance of Rangitoto from the beach is not encouraging to the excursionist. Go which way you will you find nothing but sharp scoria and rocky ledges without a trace of a path.

From the point where we landed, the Irish mate, or crew, of the cutter was of opinion that "the only way into the interior was along the beach;" but we soon found that this course was not satisfactory, and we struck off for the summit of the island with the intention of making a straight course of it come what would.

I do not think that many persons have ascended Rangitoto, although it is so near; but few places about Auckland so well repay the trouble of a visit. At this time of year, and until Christmas, when the pohutukawa is out, the shrubs, which grow luxuriantly in the crevices of the scoria, are in beautiful blossom, and remind one of the richness of tropical vegetation (and amongst the volcanic rocks there is almost a tropical degree of heat) than what is generally to be seen in the province.

I have read somewhere that Rangitoto is thought to be the most recent of the craters around Auckland. If sharpness of edge and the absence of mouldering away be any indication of the recent character of volcanic rock, I would say that this is indisputably the case; much of the scoria is in large convex-shaped pieces, not more than three or four inches thick, and six or eight feet across. These tilt and occasionally crush as you walk over them, and to a person like myself, who am no naturalist, give the idea of large bubbles or blisters of a kind of volcanic scum having existed - something, probably, between lava and volcanic mud - and broken up as it cooled or contracted.

Not a particle of soil is to be seen from the beach to the base of the central cone, but yet shrubs and some forest trees grow and flourish over two-thirds of the surface, the roots penetrating the crevices of the scoria, and finding, probably, far down, the decomposed washings of the rock.

There is no difficulty whatever to an active person in getting to the top of the island. The peak is always in view, and affords an excellent steering mark; nor is the bush so thick as to be difficult of penetration.

But what a fine fellow this crater must have been when in eruption! Stream upon stream of molten scoria must have poured down its sides, and some so copious as to have held their course out into the sea, where their remains now form jutting reefs of sharp rock, still showing the concentric "ripple mark" of the molten mass.

These indications belong to the first series of eruptions of which there have evidently been several. The cone of the island has a different composition, and consists of loose scoria ash, at an angle of 33 degrees - that at which such materials always subtend - from the horizon.

The two side peaks - there is a third on the northern side - are the remains of the rim of a former crater, that existed before the present cone was thrown up. The summit of the main crater is about 920 feet above the sea. From it the whole of the Auckland country can be seen, like a map spread below one. The Tamaki, the Waitemata, and the Thames, with its cluster of islands, are all before one; and even Manukau Heads and the sand-hills of the West Coast are visible, with Coromandel and the Great and Little Barrier Islands to the northward. On the highest point, a cairn of stones and pole indicate a surveyor's trigonometrical station; from it hills forty and fifty miles distant can distinctly be observed.

The crater is about 200 feet deep and 150 yards across, with rather steep sides, and all fern-covered. Even here English vegetation is taking the place of the indigenous herbage, and the grass and dandelion are becoming conspicuous.

Perhaps the most interesting object on Rangitoto is the "Blowhole" crater. This is on a small mound at the base, and on the western side of the main crater. The orifice or tube is not more than five feet across, and the mound and chimney about 25 feet high. There is a hole at the side of the chimney which allows one to enter and climb up to the top - a few feet only. On looking down, the lower part of the tube appears to be choked up, at a depth of 15 or 20 feet, with fragments of scoria fallen in from the summit. This is in appearance, of very much later date than other point of volcanic eruption in the Auckland country.
We sailed with a more favourable wind in the evening; at midnight we were rolling about, becalmed under Tiritiri-Matanga, the light on which shone clear and brilliant..."
(The Daily Southern Cross, November 26, 1866)

"Last night at sunset there was a complete belt of smoke round the horizon, the result of the numerous bush fires. A heavy bank rested on the spurs of the Waitakere ranges all day, while clouds of smoke were at the back of Newton, arising from scrub burning. At Rangitoto extensive patches of scrub were also burning throughout the day. Yesterday was one of the hottest days of the season."
(N.Z. Herald January 12, 1887 p.5)

"The fire which has been raging on Rangitoto for the last few days, was yesterday greatly extended and increased in volume. The southerly wind had driven the fire up the mountain, till half of the side facing the city seemed on fire. The vegetation consists of scrub and dwarf pohutukawa. Judging from the bank of smoke on the Waitakerei ranges, the fire in the direction of Muddy Creek is still progressing. It has been burning for several days, and seems to be of an extensive character."
(N.Z. Herald January 14, 1887 p.5)

"Yesterday Sergeant Clarke (of the Water Police) went down to Rangitoto to make enquiries about the fire, which has been burning there for days past. The sergeant reports that he was unable to ascertain how it originated, as the men at the Rangitoto quarries,

near Drunken Bay, and also on the east side of the island, deny all knowledge of its origin. It is probable it has arisen from the carelessness of picnickers. There was no possibility of arresting its progress, and Sergeant Clarke says it must just be left to exhaust itself from lack of further material. As it is, the stunted scrub is being burned down to the scoria rocks, but there is no danger to property through the extension of the fire. Last night a large fire was in progress in the scrub westward of Kauri Point."
(N.Z. Herald January 15, 1887 p.5)

"The fire on Rangitoto did not yesterday send up so large a volume of smoke as on Friday and Saturday. On those days the wind blew from the south, sending the fire up the face of the mountain, but on yesterday what wind there was was northerly and drove the fire down again on the burned portions. The smoke yesterday was rising from a large number of detached parts, and the mountain looked like some of the slopes of Tarawera after the eruption. A fire was burning yesterday on Motu Ihi."
(N.Z. Herald January 17, 1887 p.5)

"There was a great cloud of smoke on Rangitoto yesterday, showing that the fire which has been burning there for over a week is still making progress. Towards evening the ruddy glow of flames could be seen on the ridges of the north-eastern slopes of the mountain, but after the setting in of the rain it was not observable."
(N.Z. Herald January 19, 1887 p.5)

"In reporting that large numbers of visitors had visited Rangitoto Island during the holidays, one of the Devonport Borough Council's officers stated last night that several fires had occurred. It was further mentioned that, owing to the recent hot weather, difficulty had been experienced in extinguishing the outbreaks."
(Auckland Star January 8, 1913.)

Edward Benedict Bangerter FLS, 1911-2001

Ewen K. Cameron

Ted Bangerter, or "Bang" as he was known at the Auckland Museum (and British Museum), "Eddie" by his family, passed away on 21 August 2001 at the age of 90 years. Born 22 May 1911, Bang grew up in London, going straight from school to the British Museum (Natural History) where he worked as a botanist, ending up as Senior Scientific Officer. John Cannon (pers. comm.) recalls one of their enjoyable studies together when Bang seized the chance to be involved in the five-year British Museum study of all plant groups on the Island of Mull in Scotland (published 1978). John and Bang together collated all the field, herbarium and literature records for the flowering plants and ferns, wrote them up, together with chapters on the history of botanising in the area and the plant distribution patterns.

Bang was an active member of the Botanical Society of the British Isles (BSBI)) which he joined in 1949. He was their Honorary General Secretary 1969-67, Member of their Council 1952- 68- (71?), and was elected an Honorary Member c.1968.

Completing the cryptic crossword on the tube while commuting to work was a daily ritual. On retiring he and his wife, Queenie, visited their two sons, Ben and Bob, who had immigrated to New Zealand. Bang and Queenie liked New Zealand so much they stayed on and settled down on the North Shore near one of their sons. They only returned to London some two years later on holiday and to pack the last of their possessions that hadn't been forwarded to New Zealand.

Tony Orchard, Curator of Botany at the Auckland Museum, recorded that Bang soon after arriving in Auckland was a welcome and regular visitor to the herbarium since November 1972, with a particular interest in the naturalised plants of Auckland, and that he quite quickly made several additions to the herbarium holdings. Over the next six years he completed the reorganisation of the naturalised and foreign herbarium specimens into new folders and updated their nomenclature. At the same time he was busy collecting naturalised species in duplicate (sometimes up to sets of 12) to supplement the herbarium's exchange programme. From 1975 to 1987 he published his 12 "New and interesting records of adventive plants" papers in the *Records of the Auckland Institute and Museum* and became an Honorary Research Associate of the Botany Department. When Phyllis Hynes retired in August 1978 it is recorded that Mrs Bangerter assisted with mounting herbarium specimens, and apparently did so for a couple of years.

During the 1980s Bang continued his regular one-day per week attendances to curate the adventive section of the herbarium and bring in his new adventive collections. These collections in the Museum herbarium (AK) number over 400 specimens, collected from 1972 to 1991, and are predominantly naturalised plants from the Mairangi Bay area on the North Shore where he lived. Duplicates from those collections now exist in over 22 herbaria around the world. From 1986 to 1990 he also worked on cataloguing the Botany Department's sizeable reprint collection, but his ailing wife meant it was more difficult for him to come into the Museum. Wendy Patterson pointed out to me that Bang frequently used the rather unusual term "ruderal" on his specimen labels: "other ruderal weeds" or "ruderal community". Which means plants growing in waste places or among rubbish.