


HOPE, G.S., R. MITTON and J.A. PETERSON, in prep. Recession of the minor ice-fields of Irian Barat.


van der HAMMEN, T. and E. GONZALEZ, 1964. A pollen diagram from the Quaternary of the Sabana de Bogota (Colombia) and its significance for the geology of the northern Andes. Geol. en Mijnb. 43:113-7.


PLATE 1

View east along the Bismarck Range from 4,450 m in the head of the Pindaunde Valley, Mt Wilhelm. The diurnal convective cloud forms north of the crest of the range but the Pindaunde Valley remains clear.

PLATE 2

Mt Giluwe, 4,368 m, an extinct stratovolcano. Vegetation zonation consists of gardens and anthropogenic grasslands up to 2,500 m, subalpine forest up to 3,200 m and subalpine grasslands above the forest.
Mt Wilhelm, 4,510 m, from the east. Subalpine grasslands extend down to 3,200 m in the floors of the U-shaped valleys and forest occurs on the ridge tops to 3,800 m. The summit ridge, at 4,400 m, forms the highest skyline.

Photo: J.M.B. Smith.

Mt Wilhelm, 4,510 m, from the west. Nivation slopes occur above the glacial valley with a rock step impounding Lake Bendenumbun and breached lateral moraine below the step. The ridge crest to the right forms the main Sepik-Wahgi Divide. The ridge on the left is the crest of the Bismarck Range. Arrow indicates the western summit.

Photo: R. Mitton.
PLATE 5

Terminal moraines at 3,200 m at Kombuglomambuno, Pindaunde Valley.
a - outer moraine; b - inner moraines with Cyathea atrox tussock grassland;
c - Keglsugl airstrip.
See Plate 31 for vertical cover of this area.

PLATE 6

Glaciers in the Carstensz Mts. The glacier tongues extend about 500 m beyond the apparent firn line (f), terminating at 4,300 m. (Meren Glacier – M) and 4,400 m (Carstensz Glacier – C). The Meren Glacier filled the entire valley area shown in the foreground in 1938, and has since retreated, exposing the light-coloured rock areas after 1961.
Lower Pindaunde Lake and eastern face of Mt Wilhelm. A temporary snow cover extends down to about 3,800 m. Patches of lower sub-alpine forest near the lake.
PLATE 8

Alpine tussock grassland (site 4) at 4,400 m in the head of the Pindaunde Valley. Major tussocks are *Deschampsia klossii*.

PLATE 9

Subalpine grasslands at 3,550 m on Imbuka Ridge. Low shrubs of *Styphelia suaveolens* (s) and *Coprosma divergens* (c) are common in the grassland. The subalpine forest in the background is dominated by *Daerycarpus compactus* (d) and *Rapanea vaccinioideae* (r).
PLATE 10

*Nothofagus* forest at 2,500 m on the crest of a ridge on the northern slopes of the Bismarck Range.
PLATE 11

Chimbu gardens near the confluence of Gwaki and Pindaunde Valley streams at 2,400 m. The tall trees are *Casuarina oligodon*, planted as fallow.

PLATE 12

Crest of Bogunolto Ridge at 4,000 m. Site 5, lichen-rich short alpine grassland. In the background is *Dant honia vestita* subalpine grassland with scattered shrubs.
PLATE 13

Treeline on the northern slope of Imbuka Ridge at 3,850 m, near sites 14A and 14B.
Sites on a transect near the lower Pindaunde Lake, 3,500 m.

s - site 9;  t - site 16A;  u - site 16B;
v - site 10A;  x - site 10B;  y - site 10C;
z - site 11.

I - position of Imbuka Bog (site 12);
B - position of Brass Tarn.
PLATE 15

*Cyathea atrox* tussock grasslands
at 3,200 m near Kombuglomambuno.
e - site 13A;  f - site 13B.

---

PLATE 16

Northern slopes of the Bismarck Range
looking southeast towards Mt Wilhelm.
Mixed oak forest on foreground ridges
(site 22) and *Nothofagus* forest on
farther slopes (arrow).