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MAN ON MT. JAYA

11.1 INTRODUCTION

No archaeologist or anthropologist accompanied the Carstenz Glaciers Expeditions because no opportunities for meeting the local people were expected to occur. As it turned out, however, several different groups were encountered and the second expedition made its way to the mountains from Ilaga with the help of local guides and porters. This chapter briefly describes the groups living around the Mt. Jaya area. The effects of man on the vegetation of the area are pronounced, and an outline of usage of these high altitude areas is of interest. Finally, two rock shelter deposits were examined during the first expedition and the results of the excavations are given.

11.2 LOCAL POPULATIONS

Six major language groups live at mid-montane altitudes around the western Sudirman range, their territories being shown in Fig. 11.1 (data provided by R. Mitton). Table 11.1 provides rough population estimates and other data on the groups near Mt. Jaya.

Some confusion has arisen among travellers in the area. The term "Kapauku" is used by the south coast peoples to indicate mountain dwellers, but it later came to be restricted to the Ekag in the Panial area. Colijn (1937) gives a Kapauku-Dutch word list which is in fact Amune-Damal (a dialect of Ubunduni or Damal). Temple (1962) and Harrer (1964) call all their porters "Dani" whereas most were Western Dani with possibly some Damal. The term "Dani" includes the large distinct group inhabiting the Grand Baliem Valley.

The people are subsistence gardeners and pig raisers, depending on the major root crops sweet potato (Ipomoea batatas). There are a wide range of minor crops such as taro (Colocasia spp.), sweet corn (Zea mays) and other vegetables listed by Cooper (1971) and Powell (1976). Their social patterns and life styles are well known, e.g. Allied Geographical Section
Table 11.1 Main language groups near Mt. Jaya

<table>
<thead>
<tr>
<th>Group</th>
<th>Rough population</th>
<th>Language</th>
<th>Other names in literature</th>
<th>Main Centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ekagi</td>
<td>55,000</td>
<td>Ekagi</td>
<td>Ekari, Me, Kapaku</td>
<td>Wissel Lakes, Eneratoli (M, A, P)</td>
</tr>
<tr>
<td>Wolani</td>
<td>3,000</td>
<td>Wodani</td>
<td>Wodaa</td>
<td>Lower Kemanfoga Valley</td>
</tr>
<tr>
<td>Moni</td>
<td>12,000</td>
<td>Moni</td>
<td>Migan</td>
<td>Hitalipa, Bllal (M, A)</td>
</tr>
<tr>
<td>Damal</td>
<td>15,000</td>
<td>Ubundani</td>
<td>Ubundani, Ochoenkooni, Dama, Amung</td>
<td>Ilaga, Beoga (M, A, P)</td>
</tr>
<tr>
<td>Amumeadal</td>
<td>4,000</td>
<td>Ubundani</td>
<td>Kapaku, Amung</td>
<td>Jila (M, A), Tainga Tembagapura (?)</td>
</tr>
<tr>
<td>Western Dani</td>
<td>60,000</td>
<td>Dani</td>
<td></td>
<td>Dumandorn Valley Ilaga, Tion, Mells, etc. (M, A, P)</td>
</tr>
</tbody>
</table>

M: mission station; A: airstrip; P: Government station.

(1943), Roux (1948–50), Pospsial (1963) for the Ekagi, Roux (1948–50) for the Moni and Damal, and Gardner & Heider (1968), Heider (1970), for the Grand Valley Dani. The five groups differ little in the broad outlines of their economies and lives except that the Moni and Damal have quite small populations. The Ekagi and Western Dani groups are the largest language groups in Irian Jaya. Most of these two large populations live in broad flat valleys at about 1,700 m altitude. However some of them, and the smaller groups, occupy small isolated valleys with populations from a hundred to a few thousands only, between 1,200 and 2,500 m.

Physically the people are short and stocky although there is wide variation. Pospsial (1963) gives an average height of 151 cm for male and 142 cm for female Ekagi in the Kamu Valley. They have dark brown to light bronze skins and dark brown kinky hair. The men wear penis sheaths (koteka in Ekagi, the term used by the Indonesian Administration) made from gourds and held on by a string around the waist and the women very short skirts made from Elaeocarhis stems. Details of dress and ornamentation vary between areas but are extensively figured by Roux (1948–50) and Haddoo and Layard (in Ogilvie-Grant 1916). The houses are usually made of upright planks split from logs and roofed with pandanus leaves or grass and sedge thatch. Large "villages" do not exist and households are often widely scattered through the agricultural area, but may group within a smaller area.

Traditionally, a subtle balance existed between trade and war, both within and between the neighbouring valleys. Alliances were formed between different groups and these provided help in times of war and facilitated trade. The alliances were always breaking down and shifting ground,

an aspect which must have hindered communications. Major requirements of these inland people were for the small cowrie and larger shells which formed a currency, for salt, for innovative crop plants and, after the 16th century, for metal tools. In return they exported pigs, and also women to a certain extent, but trade with the coast must have always been difficult and dangerous.

At present fighting has almost ceased in the area and large scale wars are unlikely. However old enmities still smoulder and it is unsafe for members of some clans to travel into specific areas.

The population is nominally Christian and several active missions have been operating in the major centres since 1950–1960. Literacy is remarkably high in these centres and most of the younger men, at least, speak some Indonesian. Primary education is becoming available from the missions and government. In more isolated valleys, which includes most of the area south of the range, people are far less sophisticated, and Indonesian speakers rare. Nearly everyone works outside the Indonesian cash economy but Indonesian paper money is accepted quite widely, for it can now be used at mission stores. It is even starting to replace shell money and traditional barter, within the local trading network. Nevertheless, saltp, matches and metal implements such as axes, knives and cooking pots are highly valued and would be preferred to cash in the isolated areas.

11.3 HUMAN ACTIVITY ON THE KEMABU PLATEAU AND MT. JAYA

The CGFE spent a total of five months in the Mt. Jaya area, including some time on the Kemabu Plateau. Observations on usage by local people are thus not extensive, but are recorded here with the notes of earlier travelers.
11.3.1 Ownership

The glacier area and high crestal ridges of Mt. Jaya appear to be claimed by Amume Damal from the southern villages of Tsinga and Waa. These people live about 10 km south of the mountain crest, at only 1, 700-1, 500 m altitude, and garden on only a few square kilometres of cleared land in each valley (Map 1). Base camp was established by the first CGE in the upper Meron on 20th December 1971. On the 24th a stake bearing a cross had been placed near the tents with an indiscernible note, which a Waa informant said had come from Tsinga Valley. Three men from Tsinga were hired at Tembagapura as field assistants on 28th December but found conditions too cold and suffered altitude migraines, leaving on 30th December and 3rd of January 1972. On 16th January thirteen Amume Damal from Tsinga appeared with another cross and ordered the camp vacated. About half had bows and arrows. The cold was so intense that they accepted shelter and food from the camp and returned to the mine where a six-week stay was negotiated for the expedition. A similar claim had been made in 1969 for the Ertisberg area (Adams 1973). The attempted ejection of the expedition, despite permission for our stay having been granted by other Tsinga men, was apparently the result of leadership rivalries at Tsinga. By the end of the expedition fighting had broken out in Tsinga and Waa over wife stealing and in 1973 several people were killed.

To the north of the range the Damal from Beoga appear to be the most familiar with the Kemabu Plateau. Roux (1948-50) mentions that large parties leave Beoga for extended hunting trips onto the plateaux, and Beoga Damal guided the Cenderawasih Expedition to Mt. Jaya (Hamid et al. 1964). The Damal guides and carriers accompanying the Mapala Expedition in 1972 (see Chapter 1) were familiar with the minor tracks, rock shelters and huts near Mt. Jaya. The 1973 expedition found a Damal hunting party occupying a shelter built by the 1972 expedition at Discovery Lake, but no other Damal were encountered by either expedition. By contrast, Western Dani porters and guides from Ilaga had only a poor knowledge of the Kemabu Plateau, although they were familiar with access tracks to the eastern edge. Harrer (1964), with Western Dani from Ilaga, did not know of the Mapala rock shelter near Lake Larson (see below) and guides to Temple (1962) were apparently not aware of the track beyond the Hogayaku lakes. Two Western Dani guides recruited at Ertisberg mine by the 1972 expedition were also unaware of many of the tracks north of Mt. Jaya; they had reached the mine via the Bakupa Valley.

The degree of claim by Damal to the Kemabu Plateau area is unknown. Western Dani and Moni men are apparently able to cross the plateau because individuals from Hitalipa and Ilaga were present at the mine in 1972. Also there must be contact between Ilaga and Ugimba, an isolated Western Dani village on the Kemabu River. By contrast, all but one of the Damal porters to the 1972 Mapala expedition were unable to travel to Ilaga because of a then-current feud. Thus it would appear that access to the plateau and Mt. Jaya is open, or at least not normally disputed, by the
Damal of Beoga and to the south. Hunting rights may be defended more closely, but no data are available on this.

11.3.2 Tracks

The expeditions to Mt. Jaya, Colijn (1937), Temple (1962), Harrer (1964), Hamid et al. (1964), Peterson (1973) and information provided by missionaries at Ilaga and R. Mitton provide the basis for the routes of tracks shown in Map 1. The most used of these is the Kemandoga Valley - Ilaga - Baliem Valley which represents one of the most important trade routes in New Guinea. It links the Baliem Valley with its large population to the Wissel Lakes and ultimately Cenderwasih Bay and the northern coastal economy. The Baliem Valley also has strong links to the south over Mt. Trikora (Brass 1941). The northern rim of the Kemabu Plateau is traversed by one section of the east-west track, which branches from the Bilai-Hitalipa track, climbs onto the plateau and crosses it, descends to the Zengillorong River before climbing to the head of the Ilu River and following the northern valley slope to Ilaga. It was examined from the plateau to Ilaga by one of the authors (G.S.H.). The section from Tiom to the Zengillorong is described by Temple (1962). Except for Ilaga, this branch of the trade route avoids population centres or even habitation for most of its length, and the open, high altitude grasslands allow rapid travel. Thus in the past, individual groups were probably able to travel over much greater distances by avoiding enemy villages than was usual in New Guinea. The long climbs to the plateau, cold conditions, and lack of any source of supplies offset the value of the Kemabu Plateau sector, and the alternate valley route through Beoga has probably been of equal importance in trade volume. Temple (1962) mentions meeting a party of starving travellers about 20 km west of Ilaga, and he attributes human skeletons on the Kemabu Plateau to death by exposure. In 1972 the track was obviously still well used and worn deeply into the ground in places, but the author's party met no-one.

A track of some importance from Beoga joins the east-west route, and a few kilometres to the east, branches off to the south-east to Amume-Damal areas at Jila and ultimately Akamuga. This north-south route appeared much more travelled than the minor track joining the Tsing Valley (and New Zealand Pass) to the east-west track and Beoga track via Discovery Valley. A branch may proceed east from the head of the Tsing Valley to the Jila-Beoga track. The route from Ilaga to the Discovery Valley-Tsinga track via the Prince William ranges is also of minor importance, although climbing expeditions now utilise it quite frequently.

Other north-south routes are also not of major importance. Tracks cross the range west of Mt. Leonard Darwin from the Aga Valley to Demandora (R. Mitton, personal communication). The Bakopa Valley and pass form a well known route to Ertsgberg and had been used by Western Dani from Ilaga who were employed by the CGE in 1972. The track leads from the main east-west track and meets another (followed by R. Mitton)
which climbs south-east from the Lower Kemabu-Kemandoga Valley. At Bakopa Pass the two tracks join for a short section and then fork again; one probably leads down towards Atwanap to the south of Mt. Idenburg, and the other continues south-east across the Dayak meadow to reach the Ertsberg and then drops down a near precipice to the Aghawagon River and Waa. This track was followed by Colijn (1937), members of the 1972 expedition and R. Milton. An east-west route apparently connects the Amune-Damal villages at 1, 400–1, 700 m along the southern side of the range, apparently from at least Jila to the end of the range at Waghet. The accounts of early explorers suggest that access routes to the southern lowlands are almost non-existent.

In addition to trade, the tracks cater for two current trends in migration. Western Dani have been moving into the Ilaga Valley in large numbers recently and even crossing the Kemabu Plateau to an isolated area in the Kemandoga Valley. Damal are also moving south of the range, probably as a continuation of the colonisation of this area by Amune-Damal (Ellenberger, personal communication).

The New Zealand Pass provides a new route from the Discovery Valley—Tisina track to the Ertsberg. It was not generally known to people from Ilaga prior to the first CEI, although footprints that were found in the pass in late 1971 apparently belonged to casual workers from the mine returning to Beoga for Christmas. No track was present from the Carstenz Meadow up to the Meren Valley until one was made by J. Peterson and J. Bennett in 1971. The pass has only been ice-free for about 20 years and thus cannot have been a traditional route. It is now used regularly by mine visitors and climbers, and is thus the highest track in New Guinea. A very indistinct track leads from Lake Larson west past L. Dugundug and this may represent the original route to the Bakopa Pass and then Ertsberg. Harrer (1964) went this way to Mt. Idenburg but mentions no tracks.

11.3.3 Fire and hunting

The Kemabu Plateau tracks pass numerous huts. These are usually made with a framework of branches to give a pitched roof about 1.5–2 m in height and 3.5–5 m long. The roof is thatched with tree fern fronds, grass tussocks or sheets of the bark of the cypress Papuacedrus papuana. The walls are about 1 m in height and are often made from tree fern trunks and are sealed with grass and smaller branches. An A-frame construction is less common, with the more steeply pitched roof reaching the ground. One end is usually blocked by branches. Temple (1962) mentions many of these huts or kandangas (Western Dani), and several were encountered by the expedition. They are used by travellers but are probably built by hunting parties, who may stay for several days or revisit them from time to time. Temple (1962) states that parties from Ilaga travel to the plateau primarily in search of "ant eaters" (the long beaked echidna, Zaglossus bruijnii) and a photograph taken at Ertsberg Mine in 1971 shows several of these animals being returned to Waa or Tisina from the Bakopa Pass area. The range of animals sought at the higher altitudes is indicated in Chapter 10, but it is unclear whether many of the hunted animals are returned to the villages. Carriers with the expedition ate rodents caught in our metal traps, but made little effort to obtain game themselves.

In seeking the animals, and while travelling, fire is constantly in use and the present vegetation on the Kemabu Plateau has largely been determined by past firing. However signs of recent grass fires were not common; one area of about 1 square kilometre near the east-west track and another near L. Hogoyaku showed signs of recent burning but most of the grasslands seem by both expeditions were mature and contained abundant fuel. However most of the slopes that must once have supported forest are now either grassland or occupied by tree ferns. The forest forms relict patches, particularly on ridge crests or on rocky karst hills. Past firing has mobilised or burnt the peaty soils and many of the grasslands occupy stony soils in which mushroom-shaped boulders perch, demonstrating the loss of up to 1 m of acid peats.

By comparison with other New Guinea mountains, notably Mt. Albert Edward (Archbold & Rand 1935; Palijmans & Loffler 1972), fire frequency is not high at present. This is reasonable, considering the isolation and relatively slight usage compared to mountain areas close to large populations. Brass (1941) recorded several parties crossing over high passes near Mt. Trikora, the largest numbering 100. The vegetation there resembles that on the Kemabu Plateau but forests are still more restricted and Brass found many signs of recent burning. Mt. Gilewala, which is surrounded by heavily populated valleys within a few hours walk from high altitude areas, shows far greater evidence of human interference, with a network of minor tracks, almost complete deforestation above 3, 500 m, and snares laid for rodents dotting the grasslands.

The climate, topography and population density to the south does not favour fire, and accordingly the vegetation shows little sign of interference. The degree of forest clearance and soil loss on the Kemabu Plateau however, argues for a very long history of disturbance at present levels. This is discussed later in relation to the archaeological sites.

11.3.4 Cultural change

Traditional usage of Mt. Jaya is affected by mining and by climbing parties. The Ertsberg mine is the largest economic undertaking in Irian Jaya, and in its imposition of a highly technological enterprise onto a partly uncontacted region it represents one of the most extreme examples of cultural change that has occurred in the world. The mission areas to the north have introduced western technology on a much more modest scale, and the introduction has specifically accompanied education and explanation for the local people. The mine was imposed abruptly and with a direct policy of avoiding interaction with the Amune-Damal. As described in Chapter 1, over a period of only three years the mine built the longest road in Irian Jaya, including two tunnels, by utilising massive earthmoving equipment.
trucks, large helicopters and huge amounts of explosives. To do this several hundred Europeans and Indonesians were brought in and supported in camps that had electricity, refrigeration, heating and a wide array of entirely imported foodstuffs. As with any large project in which logistics are a problem (Adams 1973) a relatively high wastage rate in food and materials is budgeted for, with replacement rather than repair being economically justified for most equipment. The result of this is that the mining operation, particularly in its establishment stages, produced quite staggering quantities of refuse or unwanted materials which were generally simply moved out of the way and abandoned. To a society that values even a tin can as a superior container, the appearance of apparently inexhaustible supplies of metal, cloth and even food around the camps must have come as a shock. No reliable record of the effects of this on the local population has been made. However a better factual basis for supporting the concept of a cargo cult must be hard to imagine.

Millennial movements are not unknown among the Amume-Damat. J. Ellenberger (personal communication) encountered one in which a person claimed to be a messiah and convinced a village group to stop the cultivation of crops in the expectation that unceasing riches would be provided if a key could be found to unlock a stone on the mountain. Two incidents suggest that the mine might be reinforcing similar concepts among its neighbours; in 1971 helicopter pilots reported that villages in the Atwanopa (West Otomoa) area had built copies of the helicopter pads. In 1974 R. Mitton found a large marquee (55 kg) erected but unused in Uginamba, which must have been carried for at least three days' walk from the Ertsberg.

A short visit to Wai in January 1972 revealed that objects taken from the mining operation were everywhere. These included roofing iron and tarpaulins on houses and numerous tin cans, bottles and plastic buckets around the houses. Bright yellow raincoats were highly prized. At this time the mine reported trouble in containing the pilfering and had ruled all buildings off limits to the locals. A limited amount of unskilled work was provided, paid for by orders on the company canteen. At the Ertsberg shacks or huts were built by these workers, but these were regularly destroyed by the mine when employment was not available, to discourage the local people from lingering around the site. This largely was due to concern for the safety of these people, as large explosions were being set off each day. A few local recruits have been accepted as workers on conditions similar to Irianese from other centres.

The possibility of obtaining work and valuable abandoned articles has drawn men from Moni, Damal and Western Dani areas, and many of these now routinely cross over New Zealand Pass laden down with goods to take back to their villages. Presumably this new trade also operates among the southern Amume-Damat.

The rather numerous climbing parties of the last few years have nearly all gained access from Ilaga. The daily rate for carrying (ca. 500 Rp = US $1.20) is high by Indonesian standards, particularly since there is almost no other method of obtaining a cash income. Besides having a possible effect on the local economy, many of the carriers are visiting the plateau area and New Zealand Pass for the first time. This probably reinforces the number of men visiting Ertsberg but may also increase hunting activity by Western Dani in this area (Photo 11.1).

11.4 MAN IN THE PAST

Several rock shelters have been noted on the Kemabu Plateau and these have been utilised by earlier expeditions (Temple 1962; Harrer 1964; Hamid et al. 1964). The Carstensz Glaciers Expeditions also camped in such shelters on several occasions and noted abundant signs of long-term human occupation in all, such as thick smoke stains on walls and roofs, and widespread ash. In the absence of a trained archaeologist and without permission from the Indonesian Archaeological Institute (LPPN) no systematic excavations could be attempted. However modifications to rock shelters by other parties had exposed floor sections in two cases, and during the first CGE samples were salvaged to prevent total loss.

11.4.1 Mapala rock shelter

This site is located about 1.2 km north of Ngga Pula near the southwestern side of Lake Larson at 3,996 m. The first expedition of the Mapala Club of the University of Indonesia in February 1972 was directed to the shelter by their Damal guides and used it as a base camp, as have most climbing parties since (Peterson 1973). The shelter is formed by a large block of limestone (15 x 15 x 8 m) perched by retreating ice on two small lateral moraine ridges (Photo 11.2). An overhang of about 2 m on the southern side of the block provides an open exterior but dry apron along the base. Near the south-west corner a space beneath the block extends in about 4 m with an average headroom of about 1.2 m to provide an absolutely dry, sheltered area about 4 x 4 m square. The shelter lies just above the treeline in shrub-rich subalpine tussock grassland. However large shrubs of Rhododendron culminicolum and the easily burnt Rapanu sp. occur in sheltered spots, so that firewood is available. Water can be obtained from a drip fed soak on the eastern side of the block or from the lake. Heavy frosts and light snow were common in February 1972.

The Mapala party camped in the rock shelter and under the overhang, and discovered the archaeological deposit when they dug out the floor to make more headroom. They also levelled the ground under the overhang but found no noticeable traces of occupation deposit there. The first CGE visited the Mapala camp and collected bulk bone samples from the excavation spoil, and charcoal and a few bones from the face of the exposed section inside the rock shelter.

Three distinct occupation layers were exposed in the deposit (Photo 11.3). The topmost 5 cm consisted of fine red-grey ash, with no bone or charcoal. Beneath this was about 27 cm of a very black deposit, rich in
bone, charcoal and carbonised twigs. The lowest layer consisted of about 10 cm of grey clayey silts with scattered bones and small fragments of charcoal. This horizon graded into a sterile grey silty clay containing pebbles which is presumably the basal limestone till. Charcoal fragments were collected from a 10 cm x 10 cm area in the grey silts 2-5 cm below the distinct boundary with the rich central deposit:

ANU — 1015

5,440 ± 130 BP
Charcoal 34-39 cm

No systematic search was made for artefactual material since it was considered best to leave the remainder of the deposit untouched for future study. However a large sample of bone was recovered from the part of the deposit dug out by the Mapala party. On sorting the latter, two pieces of stone of possible human origin were found and are now lodged with Dept. Prehistory, Australian National University. One is a piece of chert about 15 x 20 mm in size; the other a piece of granodiorite resembling the rock that forms the Grasberg, about 4 km south-west across the Northwall.

Mr R. J. Lampert, Department of Prehistory, Australian National University, examined the specimens and noted:

The chert flake, which has broken away from the working edge of an implement, shows characteristics noted by White (1972), for many chert scrapers found in the eastern-central highlands. Typical of such scrapers, the specimen from Mapala has a working edge that is steep, heavily stepped and overhung. Whether the piece of granodiorite formed part of an artefact is not entirely certain, although clearly it must have been transported to the site through human agency. One surface is distinctly smooth, but examination through a binocular microscope failed to reveal the striations typical of a deliberate grinding and polishing. Its other surfaces were formed by fracture, but there is no sign of intentional flaking.

Three pieces of mollusc shell were found, and one, an almost complete valve, was large enough to be identified by Dr P. Colman, Australian Museum, as an indeterminate species of the family Geloinidae. This family is restricted to brackish coastal waters, but some species, which are used as ornaments in the Papua New Guinea Highlands, have been found in archaeological sites there (White 1972). The shell fragments, which were from the middle layer of the Mapala deposit must have been brought originally from the coast.

The main component of the collection was mammal bone, and this is listed in Chapter 10. The small amount of bone associated with the radiocarbon dated horizon included the copper ringtail possum, bandicoot and wallaby. In the bone-rich horizon the presence of bones of the long-beaked echidna shows that this species was consumed on the site. This is of interest in that the apparent aim of at least some present hunting expeditions appears to be to return this species to the settled areas. Another contrast arises from the relatively frequent occurrence of two species of wallaby in the bone material. Damal and Western Dani who were asked about the extant fauna of the area did not seem to know of wallabies in the area, and identified pictures of another montane species (Dorcopsulus vanheurnei) as the coastal wallaby. The possibility exists that these species have become rare or even extinct within the past 5,000 years. The establishment of a wild dog population could have contributed to this situation more than direct hunting pressure.

Damal guides from Beoga who located the rock shelter for the Mapala party commented that their grandfathers used to camp there when hunting. It did not appear to be in frequent use when examined because no distinct track led into it. The guides interpreted the charcoal and bone-rich level as the remains of animals that had died naturally since Damal hunters break up and burn the bones of their catch thoroughly. This reaction may explain the upper 5 cm of the deposit which is ashy and bone-free. This level may represent the most recent cultural horizon and one which is distinct from the bone-rich horizon.

11.4.2 Let. Kol. Haji Aswar Hamid rock shelter

This rock shelter is located at 3,450 m about 15 km north-east of the Northwall and 500 km south of the Kemabu River on a ridge to the west of the tributary leaving Lake Hogayaku. It appears to be currently used considerably more than is the Mapala rock shelter. The Beoga-Tsinge track leads past it and several tracks criss-cross the general area (Fig. 11.1). The shelter consists of an under cut about 20 m in length and 1-2 m in depth and height lying at the base of the northern wall of the doline (Photo 11.4), about 100 m across and 25 m deep. A short tunnel leads to a neighbouring doline. The eastern and southern sides of the doline are steep, tussock grassed, slopes with tree ferns. Forest has been completely removed to the north and east, but patches of forest occur about 300 m south on ridge crests.

Water is available from the Asair River 200 m to the south-west, where it is swallowed into a cave. The upper levels of this cave are steep floored, dank and unsuitable for occupation.

Within the rock shelter the floor had been roughly terraced into 2 m sections, presumably for sleeping areas. This was probably done by the 1964 Cenderawasih Expedition (Hamid et al. 1964) who named their camp here the Let. Kol. H.A. Hamid Camp.

A 50 cm section was examined in the middle terrace at a point where the deposit appeared not to have been removed nor overburden deposited. It consists of 8 cm of cave earth with charcoal fragments above 5 cm of charcoal rich silts. Beneath this is 2 cm of yellow silts with lenses of wood ash, a few stones and infrequent bones. The basal occupation level is a 5 cm thick layer of charcoal which overlies 5 cm of yellow silty clay which grades to a sterile decomposed limestone. A radiocarbon date was obtained from large fragments of charcoal picked from the lowest charcoal layer.

ANU — 1014

820 ± 65 BP
Charcoal 32-37 cm
Stone found in the section was all local unworked limestone fragments. Bones were infrequent and much less abundant than in the Mapala rock shelter. The only mammal species present was the long-beaked echidna whose bones were found resting on the dated charcoal horizon. In the topmost layer at 7 cm the husks of fruit of the mountain pandanus (P. cf. guianettii) were found. This species produces abundant nuts at certain seasons, which can be smoked and preserved. They thus form an important reserve food unlike all other highland crops which cannot be stored for any length of time. The occurrence of the seed husk at the Hamid rock shelter suggests that travellers or hunters bring some rations with them. The fruits must have been obtained at lower altitudes and at least 25 km away.

11.4.3 Ijomba pollen analysis site

The 14,000 year record obtained from the Ijomba Bog in Discovery Valley at 3,630 m provides no direct evidence for the presence of man, but some of the record could possibly be due to human-lit fires. The site and vegetation history is described in Chapter 9; vegetation changes attributed to fire include a decline in subalpine forest around 5,000 years ago which was accentuated in the last 2,500 years. An increase in tree fern spores (Cyatheae) commenced about 10,500 BP and this is also consistent with an opening out of the forest, perhaps by fire.

The curve of carboxi;ated plant fragments (Fig. 9.2) provides a very rough indication of relative fire frequency. The curve rises markedly at the time of the early spread of tree ferns and is still high at the resumption of bog deposition at 6,300 BP (see Chapter 9). The highest frequencies occur between inferred ages of 3,500 and 2,000 BP but after 1,500 BP there is a major decline to very low levels.

Although fires cannot definitely be ascribed to human agency, in the perennially wet, cool climate man remains the most likely cause. The relationship between the carbonised particle curve and frequency of human visits to the area is far more tenuous; it is possible that one visit per millennium during dry conditions could produce more intense fire damage than constant small grass fires. However it does appear that rather frequent burning has been taking place for the last 10,000 years and that this was especially heavy between about 3,500 and 2,000 BP. The present grasslands of Discovery Valley and the Kemabu Plateau contain abundant fuel but are obviously not now burnt intensively. The Ijomba record indicates that this situation has probably been in force for the last thousand years.

11.5 DISCUSSION

The deposits reported here are the first dated archaeological records for very high altitudes in New Guinea. They show that man has been a visitor in the area for at least the past 5,500 years, and may have penetrated to high altitudes well before this. A glottochronological time depth measurement of Ekagi and Moni languages (Larson and Larson 1972) suggests that these languages have developed from a common base over about 1,000 years. It can be assumed that the early hunters who camped in the Mapala rock shelter were quite distinct in language and culture from the present Dama.

The existence of hunting activity from these early times suggests that a settled population was already established at lower altitudes. Certainly the presence of coastal shell at Mapala demonstrates the existence of a trading network. The shell was found in a bone-rich horizon indicating a phase of rather intense occupation. Although this phase has not been directly dated, it may coincide with the peak in firing at Ijomba between 5,000 and 2,000 BP. It is possible to speculate that this phase presents an initial exploitation of abundant game, and that hunting may be less productive now, at least in terms of wallaby and echidna. Equally changes at lower altitudes in the form of new crop plants or agricultural methods may have reduced the importance of the high country as a resource area. Nothing is known of current hunting success rates, and comprehensive excavations of the Hamid, Mapala and other shelters on the Kemabu Plateau are needed to establish times of initial occupation and period of major utilisation. This would demonstrate any patterns in the utilisation history, perhaps from the treeline at earliest times down onto the plateau as forest became cleared, or following forest clearance up to higher altitudes.

Similar evidence of disturbance is available from other New Guinea mountains. Deposits of charcoal from wood fires at 3,500 m altitude have been dated on the Saruwaged Mountains and Mt. Giluwe, at 3, 800–4, 380 years BP. If this charcoal is attributed to man-made fires, then disturbance of the subalpine forest had commenced by this time (Hope and Hope 1976). On Mt. Wilhelm, Hope (1976) records clearance of subalpine forest after 1,000 years BP and links it with agricultural expansion at lower altitudes. In view of the discovery of widespread agriculture dating back before 6,500 years BP in the Western Highlands of Papua New Guinea (Powell et al. 1975, Bulmer 1974), the records of high altitude disturbance in Papua New Guinea seem to record an exploitation of high altitude resources well after an agricultural base is established.

It is not yet known if this applies to the much longer record from Mt. Jaya. Surprisingly the Mapala and Hamid rock shelters yield the first dated archaeological results for Irian Jaya or indeed west of Wabag in Papua New Guinea.

Man has a much longer recorded history on the island, and a palaeo-lithic industry is known from the Papuan highlands 26,000 years ago (White et al. 1970). Hope and Hope (1976) have pointed out that prior to 10–12,000 years ago the mountain grasslands extended to much lower limits, and had an area of perhaps 50,000 sq. km. The first people to reach New Guinea, presumably from Indonesia, may have first occupied the coast, but had certainly reached the highlands by about 30,000 years ago. They would then have had access to the subalpine grasslands for hunting and
swift travel along the spine of the island. We do not know if the grasslands
were utilised since no archaeological sites are known from high altitudes
during glacial times. The possibility exists that man was present on or near
Mt. Jaya to see the great ice sheets march down onto the Kembau Plateau
and later slowly withdraw to the silent crags. Usage of the plateau for
hunting and access tracks would have evolved naturally after 12,000 BP
as forest chocked the lower valleys with the rise in the treeline. Although
direct evidence is only available for the last 5,500 years, man could have
been a part of the ecology of Mt. Jaya for a much longer period.

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