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IN THIS ISSUE

Welcome aboard,

Shisei Kuwabara, Japanese aerial photographer extraordinaire, has made another sortie in Papua New Guinea skies. His visit to our country about a year ago resulted in a series of photographs which have been an outstanding feature of subsequent issues of Paradise. So much so, that Air Niugini, with the Papua New Guinea Banking Corporation, invited him to make a second visit, this time to concentrate on various aspects of the national economy. But he still took time out to circle some of our more spectacular airports, among them the Lakunai strip at Rabaul, shots of which appear on our cover and in the centrespread. Others will be in future issues.

Shisei, born near Tokyo in 1936, trained as a civil engineer before turning to fulltime photography. Soon after graduating from the Tokyo Photographic College, he won the Japan Critical Photography Association's prize for his coverage of the Minamata water pollution epic. This saw violent confrontation with big business which had been blamed for the pollution which had resulted in mercury poisoning among the people of Minamata in south-western Japan.

We know Shisei as a specialist in aviation photography. But his real love is documentary photo-journalism. His expertise in this field became apparent to us in the manner in which he tackled his assignment to record the state of our burgeoning Highlands coffee industry. And when he had wrapped up this project, it was back into the air again for a high altitude tour of some of our more remote Highlands airstrips. Do you fancy hanging out of the door of a Talair light aircraft in near-zero temperatures? If that's what is necessary to get the right picture, Shisei Kuwabara will do it. He tells us he'll be back again soon. It seems that Papua New Guinea, while being shot by Shisei's lens, has in turn captivated this lensed adventurer.

C.B. Grey
General Manager

PHOTO CREDITS

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Bob Halstead
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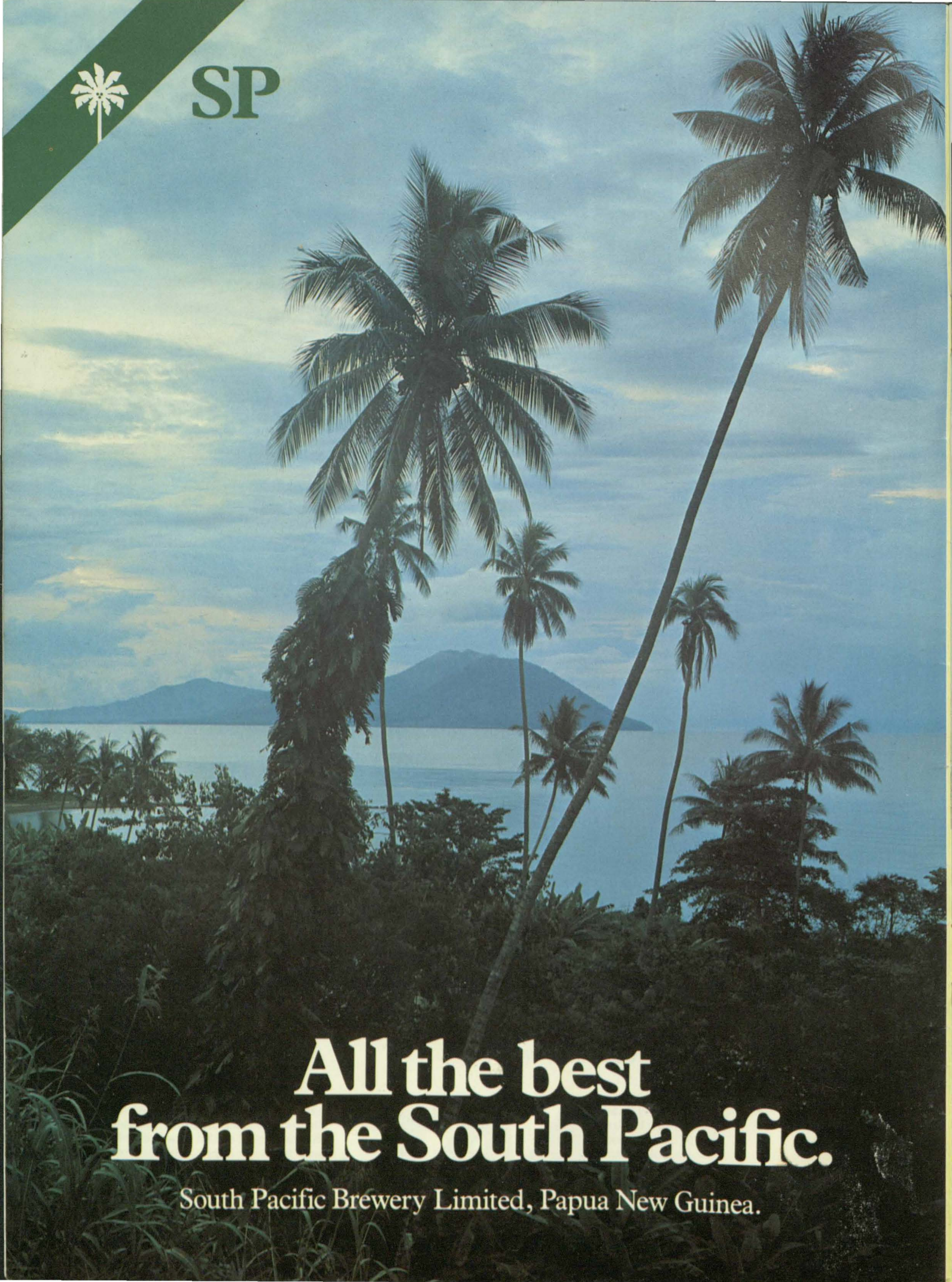
Hong Kong Tourist Association
PNG Office of Forests
PNG Office of Information

COVER

Shisei Kuwabara captures everything that lingers in the memory of the airborne visitor to Rabaul, capital of East New Britain Province, with this shot of one of the most breathtaking areas of Papua New Guinea. At the end of the airstrip is Matupi volcano and dominating the skyline is the dormant South Daughter. There's another Kuwabara masterpiece in the centrespread.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CHEUNG CHAU

Most people who go to Hong Kong for a holiday do so because they *don't* want to get away from it all. But for many who live and work in this British Crown colony, a break from the bustle, fumes and 24-hours-a-day throb of this incredible city, is almost a necessity — hardly a luxury.

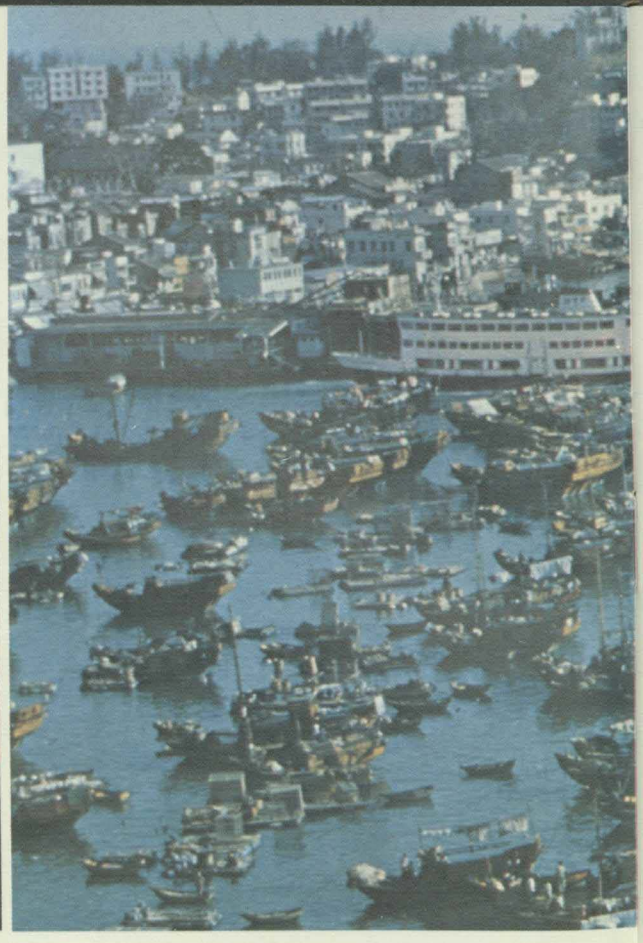
Some put up with daily commuting to the quieter spots on Hong Kong Island such as Repulse Bay, and Stanley, or trek to the comparatively rural scene of the New Territories. But others, particularly those who remember the civilised way of going to work in Sydney — on a ferry across the harbour — choose Cheung Chau, a small island about six kilometres east of Hong Kong Island.

It's not the most attractive island you've ever seen. It's certainly not under-populated. One resident estimated a population of 50,000 — on an island not much more than two square kilometres. Its charm, surely, must be its lack of motor vehicles. It doesn't even have streets to accommodate cars — unless you count the waterfront stretch of road where regular ferries call from Hong Kong. And, even there, in the crush of street stalls, you'd be lucky to navigate a path with a motorised vehicle.

If you're determined not to walk on Cheung Chau, your only alternative seems to be a bicycle. And even cyclists don't win too many friendly smiles.

That Cheung Chau, with so many people occupying so little land, is a haven of peace, is a paradox. But it is not the peace of a sleepy fishing village. The island's western bay is home to hundreds of fishing craft, from the smallest sampan to the largest ocean-going junk.

The industry is non-stop. Along the waterfront you can watch every activity allied to fishing, from hook-making to junk-building. And not all are fisherfolk. In the 2500 years which have passed since Cheung Chau is believed to have been first settled, many other industries have been established, among them, fruit and vegetable preserving, soy sauce



manufacturing, jade carving and even a little shop which produces hand painted silk butterflies.

About 500 years ago, Cheung Chau was peopled by Hoklo fishermen. They were later joined by Cantonese and Hakka people who added to the economy with smuggling and piracy as profitable sidelines.

Cheung Chau's claim to festival fame is symbolised by the simple confectioner's bun. When the Bun Festival began is a mystery but the story goes that after Cheung Chau had been swept by a devastating storm followed by an epidemic which claimed many lives, the people asked Buddhist and Taoist priests to perform ceremonies which would appease the gods.

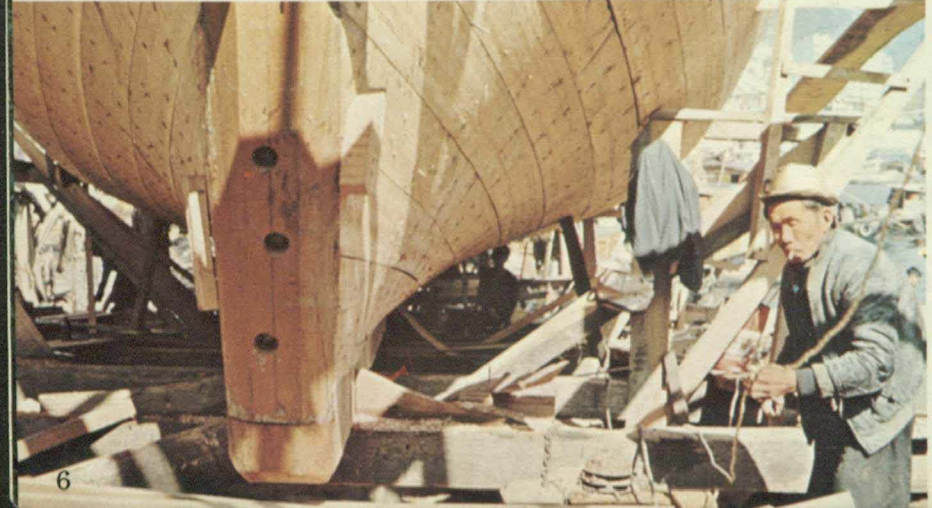
The ritual they came up with survives to the present day. A vegetarian diet is necessary in the week preceding the festival. (Don't ask for meat on Cheung Chau if you visit during this sacred period. You may be asked to leave.) Then the three-day event begins.

Village children dress in ancient Chinese costumes and parade as characters from legend or history, walking on stilts or riding on floats. On the third day at midnight thousands of islanders scramble up the 'bun hills' — bamboo scaffolding covered with buns reaching to 20 metres. The higher a bun is taken the better the luck it brings to the eater.

While this may be the highlight of the Cheung Chau year, there's much that is fascinating to see at any time. There are many temples on the island — Kwun Yam, Pak Tai, Hun Shing and four Tin Hau temples. On show in the Pak Tai temple is a big iron sword, said to have been forged in the Sung Dynasty between AD960 and 1279. It was dredged up by fishermen more than 100 years ago.

Just around from the harbour to the west is a pleasant beach with safe swimming and on the other side of the island, for the more intrepid, swimming off the rocks is popular.

And for those who go to Hong Kong to eat, Cheung Chau has an excellent restaurant whose quality belies its spartan air. Try the sugar prawns. They have a taste of their own.



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Where butterflies sleep

Paradise *asked Eric Lindgren to tell us where butterflies sleep. Lindgren, a naturalist-writer-photographer, who has contributed to a number of books on Papua New Guinea, told us that many species of butterfly seek the peace of rainforest to rest. A member of the staff of the PNG Office of Environment and Conservation, Lindgren takes us beneath the rainforest canopy, at night, to look for sleeping butterflies.*

Orchid swallowtails on the wing

Tropical rainforest is one of the most complex vegetation associations known and is difficult to work in. Because of the tangle of lianes, palms and sundry shrubs and saplings at ground level, it is not advisable to venture off the walk-tracks through the forest.

Even during the day it is easy to get lost. The leaves above form a continuous roof, one tree merges into the next, and the closed canopy lets little light through. The sun is not visible and it is difficult to know where north lies. Without a compass, you soon find yourself walking in circles.

At night, of course, it is worse. It becomes an area of still, stygian gloom. Once eyes have adjusted to the darkness, even the soft, friendly winking of a firefly seems as bright as a neon light.

It is an area of calm. The leafy canopy is a blanket and though forceful winds may blow above, their fury seldom touches the forest floor. When rain comes, few drops fall. Sometimes minutes pass before the first water finds its way to the ground. The foliage cradles the rain before channelling it down a trunk to the forest floor. More rain and the leaves cannot cope. The water begins to seep through in a gentle filtered drip.

With a head torch to light my path and a compass to find my way,

I am prepared. The forest I search is one I know from daytime explorations: to the east a creek wandering through flat land beneath a nearby hill; to the south a swamp, its interior clustered with palms too thick to penetrate, its borders guarded by tangled ferns; to the north a creek, joining the first and the water of both telling my position by the direction it flows; to the west a road, where cars may sometimes be heard.

This is forest I feel secure in. I recognise the huge buttresses of the fig trees stretching to the sky. I see the stilt legs of the giant pandanus, propping up a crown which sheds yellow fruit to the floor. I know the tree where the pigeon had its nest. These and a hundred other familiar things let me know my bearings.

In daytime, the butterflies flit through the forest searching for food and a place to lay eggs, occasionally pausing to rest. At night, they sleep, each in its favourite position.

At first I did not realise that I was seeing repeated patterns. Slowly I sorted them out. The owl butterfly (*Taenaris myops*) is always found sleeping underneath a broad green leaf, its body horizontal and wings drooped toward the ground. Named for the two bright yellow and black 'eyespots' on the hindwing, the owl is typical of a butterfly family found at its best in Papua New Guinea. One species is found in Australia, but only in far northern Queensland.

Choosing a similar position — under live leaf, body horizontal, wings drooped — the map butterfly (*Cyrestis achates*) also represents a group found mainly in Papua New Guinea. Map butterflies are named for the line patterns on their wings similar to those on a map.

As a variation on the theme of this sleeping position, the hamadryad (*Tellervo zoilus*) chooses to gather together in loose groups to sleep. During the day the hamadryad is a slow-flying solitary butterfly which flits within a few metres of the ground in its search for food. At night, for some reason unknown, the butterflies sleep in groups, perhaps seven or eight, all within a hand's span of each other. I have counted five asleep under the same leaf. The small grass yellow (*Eurema hecabe*) of grassy savannas does the same.

Crow butterflies (*Euploea*) and the blue tiger (*Danaus hamata*) take the opposite stand from the owls and others. Crows and tigers prefer to sleep on a thin dead twig, hanging root or climber. Sometimes, but not often, they sleep on a leaf, usually dead, occasionally green. And when asleep, they hold their heads up, bodies vertical and wings out behind. A favoured twig may become the resting place for four or more butterflies, each separated from its neighbour by a few centimetres. They sleep together yet apart.

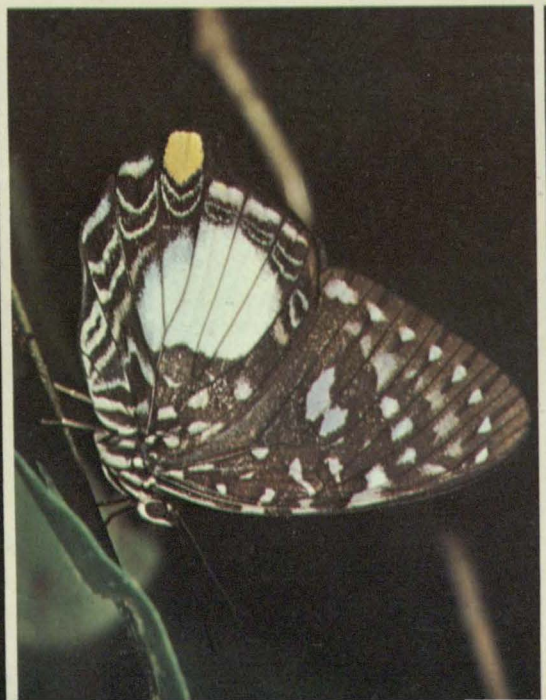
Some butterflies always sleep with their head pointing to the ground and tail in the air. The yellow-tip butterfly (*Prothoe australis*) and the false owl (*Elymnias agonda*) choose this position. Head down, tail up, wings held up. Both assume the same position during the day. A favourite perch for the false owl is the saw-toothed leaf anchor of a lawyer vine (*Calamus*). The yellow-tip will settle direct on the trunk of a lichen-covered tree.

Finally, the orchard butterfly and its allies: medium-sized black and white butterflies, frequently marked with red and dull orange. These are swallowtails (*Papilio*), closely related to the spectacular birdwings. Though not rainforest butterflies, they are frequently seen in the open around the forest edge. At night they sleep with open wings, choosing a projecting twig with two or three leaves. They sleep with body vertical, head up, and wings held perfectly flat, out to each side of the body.

That's where just a few of the 500 species of butterflies in Papua New Guinea go to sleep. Now for a few general observations on other species.

As for birds (parrots, pigeons, kingfishers, birds of paradise) and orchids (*Dendrobium*, *Bulbophyllum*, *Phreatia*), this tropical island has favoured certain families of butterfly. The most spectacular are the swallowtails, with 37 species including the giant *Ornithoptera* birdwings.

Each of the eight species of birdwing is tied to one or two species of the climbing vine *Aristolochia*. The Dutchman's pipe is a garden plant of this genus. Female birdwings lay their eggs upon the climber and the caterpillars feed upon its leaves. At pupation time they leave their host and sling themselves beneath a leaf



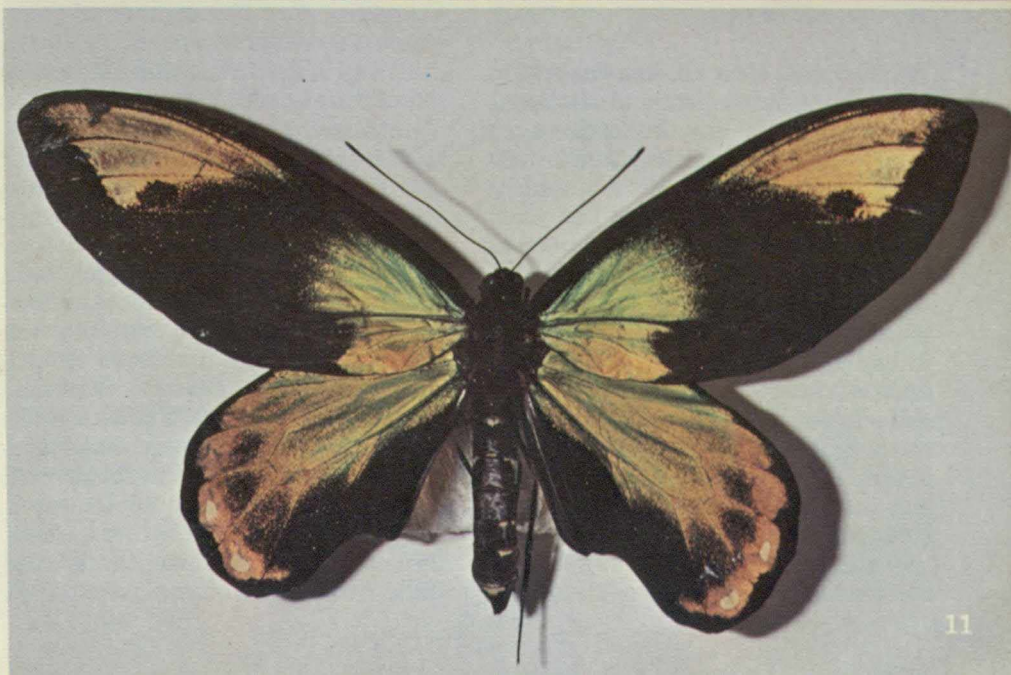
of a nearby tree. Here they change to the adult. As the caterpillars feed only upon a limited number of *Aristolochia* it follows that if the host is killed or exterminated, the butterfly will become extinct.

The female Alexandra birdwing (*Ornithoptera alexandrae*) is the largest butterfly in the world, spanning 27cm across the wings. Sadly the only place in the world that this species is found is in a limited area around Popondetta in the Northern Province. And it is suffering from destruction of its habitat. Little thought appears to have been given to conservation of the species by the establishment of wilderness areas or intensive planting of the *Aristolochia* climber it needs.

On the brighter side, the Victoria birdwing (*O. victoria*) of Bougainville is quite common. It is not quite as large as Alexandra's birdwing. The first specimen was collected in an interesting manner by naturalist John McGillivray. He brought it down with shot from his gun. The specimen, in the British Museum, clearly shows the holes in the wings caused by the pellets.

Widespread in the lowlands, the common birdwing (*O. priamus*) is the species most likely to be seen by visitors to Papua New Guinea. The male averages about 15cm across the wings and the female is larger. This is the only birdwing not protected by law in Papua New Guinea, as it is common in most coastal areas. It may be seen occasionally in Port Moresby although the surrounding dry eucalypt savannas are not favourable for it.

Perhaps the small number of *Aristolochia tagala* climbers in the city gardens attract the few individuals seen within city limits. Like Alexandra's birdwing, a campaign to promote cultivation of the host plant in Port Moresby and other coastal towns would prove an attraction for the pretty green and black males and the darker, duller females. It would be an attraction for visitors too.



From far left: *asleep, the blue tigers and the yellow-tip, and the map butterfly sips water from stones in a creek;* **above right:** *the hindwing of a Queen Victoria birdwing unfolds after emergence from the pupa;* **right:** *an adult Queen Victoria birdwing, 125 mm from wing tip to wing tip.*

TIMBER

By Peter Eddowes

All of Papua New Guinea lies within the equatorial region and the vegetation reflects the conditions of relatively high rainfall and uniformly high temperature and humidity which prevail throughout the year. There is no recognised summer or winter. But there are wet and dry seasons which depend on prevailing winds.

Papua New Guinea has a land area of some 46 million hectares and a forest cover of some 40 million hectares. While about 50 per cent of forests are considered inaccessible and another 30 per cent not yet suitable for commercial development, an estimated eight million hectares are considered both accessible and suitable for development. Also, there are sizeable grasslands in the hills suitable for either industrial plantations or for incorporation into agro-forestry rural units. The forests, which closely resemble those of insular South-east Asia, contain a great variety of hardwood and softwood species.

Papua New Guinea's rich lush forests extend from the coastal lowland rainforests high up into the damp wet mossy forests to an altitude of 3350 metres. Montane forests extend from 2100 to 3350 metres. *Nothofagus* spp. dominates this community. Alpine scrubs and tundra are found above 3350 metres. It is estimated that there are some 200 species of tree size, though the bulk of forest volume is often in relatively few species. To date over five million hectares of forest considered economically accessible now have been inventoried for development potential. The complex flora is a botanist's paradise and includes some of the finest cabinet and furniture woods that can be found in the world today. Included among these timbers are ebony (*Diospyros ferrea*), rosewood (*Pterocarpus indicus*), walnut (*Dracontamelon puberulum*) and oak (*Castanopsis acuminatissima & Lithocarpus* spp.).

However, these timbers are somewhat limited in occurrence and the major commercially available timber species that have made an impact and are much in demand on overseas markets, especially for furniture manufacture, are pencil cedar (*Pala-*

Above: *logs for export to Japan;* **left:** *a fallen kamarere, one of the most valuable species harvested in West New Britain Province.*

(*Palaquium* spp), taun (*Pometia nata*), kwila (*Intsia* spp.) and kalofilum (*Calophyllum* spp.).

The island of New Britain is the major commercial source of PNG's tropical hardwoods. Besides the many fine cabinet timbers, there is a valuable resource of structural timbers such as the giant kamereres (*Eucalyptus deglupta*) and malas (*Homalium foetidum*).

The largest and as yet undeveloped resource in Papua New Guinea is the Vanimo area in the West Sepik Province near the West Irian border. This area consists of 287,000 hectares of which 14 million cubic metres (log volume) is estimated as being suitable for sawn timber and veneer and a further estimated 21 million cubic metres as being suitable for pulpwood. It is a valuable resource as two of the most sought after PNG timbers — kwila and taun command approximately 40 per cent of the total log volume.

The development of the National Garden at Lae, in the Morobe Province, established in 1949, has been parallel to that of the herbarium. Field parties, making botanical collections, have also brought back living material of native plants. Exotic species have been imported from other botanical gardens in exchange for native species.

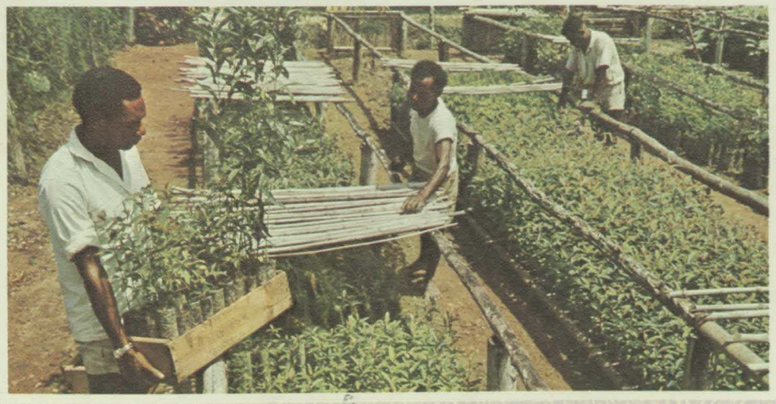
Planting has been adapted to the natural features and the residual forest of the area. There are collections of some 150 palms, native and exotic; tropical fruit and spice trees; bamboos; important *Dipterocarp* spp from Malaysia; and kauri pine (*Agathis*).

Native orchids have been established on trees throughout the gardens and large collections of native and exotic species are maintained. While not necessarily planned for this effect, all this results in a recreational facility at once pleasant, restful and interesting, which has proved an attraction to tourists and local people alike.

Another tourist attraction is the McAdam National Park around the lovely township of Wau, also in the Morobe Province. This is one of the many national parks in Papua New Guinea and was dedicated to the first director of the Department of Forests, J.B. McAdam.

Papua New Guinea's reforestation

Burning off virgin country near Wau in the Morobe Province before planting with klinkii pine seedlings which are used in the manufacture of plywood.



Top: *preparing logs for transport to the coast;* **above:** *thousands of seedlings enjoy nursery attention before being planted out in the reforestation program.*

program, designated an important sector in all policy statements, is intended to provide a continued supply of raw material to the established industry. Reforestation effort has been largely directed to maximising production through plantation forest management. While much of the work accomplished may be considered of an experimental nature, these plantings are even now making substantial contributions to supplies and by 1982 the industry at Bulolo, a few kilometres northwest of Wau, will turn to plantations for raw material.

Nursery and field techniques have been established for species such as teak (*Tectona grandis*), kamarere, hoop and klinkii pine (*Araucaria cunninghamii* and *A. hunsteinii*), *Eucalyptus* and *Pinus* spp.

Reforestation centres are located near established industries at Kerevat in East New Britain Province, Port Moresby in Central Province, and Bulolo, and in timber deficient areas such as around Goroka in the Eastern Highlands Province, and in the Wahgi Valley in the Western Highlands Province. Plantings to date are approximately 16,000 hectares.

A widespread extension program was developed to provide for village purposes and this has been very largely orientated to the treeless valleys of the Highlands, where urban and agricultural activities have created an acute timber deficit for fuel and round timbers. Emphasis is now being directed to individual or communal block planting to allow commercial sales to preservative treatment plants, for posts and other items and to sawmills at a later date.

Natural regeneration techniques have been studied for some forest types and appropriate techniques are available for the *Pometia-Dracontomelon-Terminalia* rainforests of East New Britain, the *Anisoptera* forests of the Morobe Province and for the *Eucalyptus* savannahs. Further work is indicated in the very mixed lowland forests where selective logging enrichment planting seem desirable, and in the *Nothofagus* forests of the Highlands. Enrichment techniques are in use in the *Araucaria* forests and preliminary work in lowland rain forest on these lines are in progress and are promising.

The timber resources of Papua New Guinea are immense. The industry has the potential to become, along with agriculture, one of the mainstays of the economy. Not only could it develop much further as a major foreign exchange earner, it could also become a key source of revenue for the government. A big advantage is that the forest resources are located in many of the least developed provinces and can thus become a significant medium for the dispersal of economic activity.

There have been marked developments in the industry sector over this period. A primary objective has been to provide locally material for reconstruction and development. This has required the acquisition of resources adjacent to growth centres and the encouragement of industry to these areas. The forest industry in many cases has been the first experience of advanced technology to many people in Papua New Guinea.

The immediate post-war industry consisted of two sawmills, one an ex-Australian Army mill operating at Yalu near Lae and the other a reorganised Japanese Army mill at Keravat near Rabaul. Today there are some 90 saw, one plywood, three veneer and one chipwood mills operating. This generally rural based industry has an annual log harvest of 800,000 cubic metres.

The forests now have a total downstream processing industry of 130 factories employing some 4,000 people, paying about K5 million per year in wages and with an investment of some K30 million in land, buildings and plant. The industrial development of the forest resource is a major component of secondary industry in Papua New Guinea.

The industry already earns about K15 million, four per cent of the national export earnings. It saves on imports by providing 106,000 cubic metres of sawn timber and 3,600 cubic metres of plywood for local use each year. The value of this timber is about K17 million.

The existing plywood industry benefits accruing to Papua New Guinea are quite considerable. Papua New Guinea's only plywood company, which started operations in 1953, maintains a self-contained township at Bulolo, all costs being met by Commonwealth New Guinea Timbers (CNGT). The company also provides electric power to both Bulolo and Wau. Apart from the direct employment opportunities created by the mill, there are a large number of Papua New Guineans employed in anciliary operations in and around Bulolo. Australia has always been the most important export market for Papua New Guinea plywood.

Records show that PNG's log harvest has expanded from 24,000 cubic metres in 1950-51 to 800,000 cubic metres in 1974-75 and the value of exports has risen from K50,000 to K15 million in the same period. Based on value, 60 per cent of the timber export during the period went to Japan, while about one third went to Australia. The total log harvest over the period 1950-75 has been eight million cubic metres. The value at current prices of the three million cubic metres of logs converted to sawn timber and used for development in Papua New Guinea over this period has been K100 million.

This massive development has only been made possible by a utilisation research program. One of the primary objectives of research was the early determination of the properties and use of Papua New Guinea timbers. This was developed by the comparison of PNG species of unknown properties with similar species of known properties in other parts of the world.

Throughout the years progressive collection of timber species was made in respect of the importance of a species and its presence in the forest resource. This work was carried out originally in conjunction with the Commonwealth Scientific and Industrial Research Organization (CSIRO) Division of Forest Products, Melbourne, Australia.

Accomplishments of this major research and extension program over the years include the determination of the mechanical and physical properties and end uses of about 180 species, the development of appropriate preservative treatments and their successful introduction into commercial practices. Work has been done on the harvesting and economics of a number of minor forest products including sandalwood, gum, resin, tannin and rattans. — *Peter Eddowes is a wood technologist at the Forest Products Research Centre in Port Moresby.*

Rabaul

Imagine! Two thousand metres of mountain imploding into less than nothing. Explosion — upheaval; implosion — 'downheaval'? It doesn't matter which. That expanse of water in the middle foreground — East New Britain's Blanche Bay — was once occupied by a delicately balanced peak about 2000 metres high. Scientific research suggests it was there until as late as 500 AD — when all of it, in one gigantic subterranean hiccough, slid beneath sea level, allowing the Solomon Sea to flood in. Fifteen hundred years later it is safe anchorage for marine visitors to what is perhaps Papua New Guinea's most spectacular harbour. Out of holocaust has come beauty. But not without an ever present threat of more ructions. *Shisei Kuwabara's* shot, clearly picks out four potentially spiteful volcanic sources — the Mother (high peak to the left), Rabalanakaia (to right front of the Mother), the South Daughter (towering over the end of Lakunai airstrip) and the ever-bubbling Matupi (on the lower slopes of the South Daughter). In 1937 Matupi gave warning to Rabaul's residents of the power it holds over them. In a series of startling tremours and belches it buried the town in a layer of volcanic ash through which the resilient frangipani was the first to force its way through and prove that it was going to take more than the forces of the underworld to make the people abandon this otherwise idyllic spot. Today, Rabaul is a tidy city, Papua New Guinea's third largest. It offers a gentle welcome to the traveller who wants to see more of the country than just Port Moresby.

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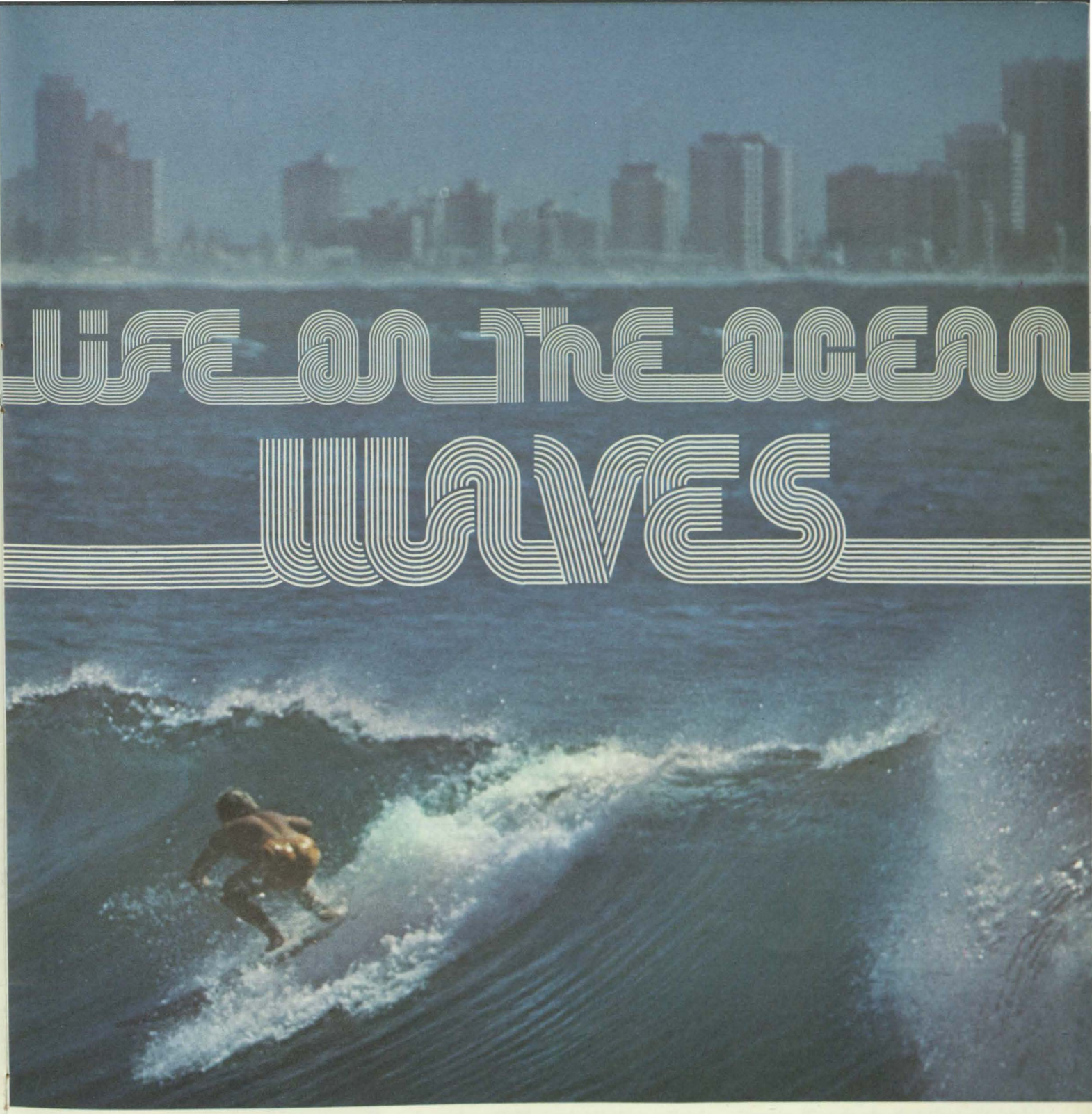
LIFE ON THE OCEAN WAVES



Story: Laurie Kavanagh
Photography: Jim Fenwick

No one knows how long man has been going down to the sea to ride the surf. But surfing had been around for a long time before Captain Cook first saw Australia.

After watching islanders ride the giant breakers which wash the Hawaiian islands, Cook made a lengthy entry in his ship's log, observing that the 'boldness and address with which we saw them perform these difficult and dangerous manoeuvres was altogether astonishing and is scarce to be credited . . .'

That might rate a bit of a laugh among today's surf set but it must be remembered that, seeing the Hawaiians at play on the water for the first time — and from a distance — might have suggested to Cook and his crew that they were actually walking on the water.

Surfing was an integral part of Hawaiian culture. Every man, woman and boy was expected to give the sport a try. Some had it better than others. If you were a member of the chiefly class you were allowed to use the *olo* boards which were longer, slimmer and lighter than those the Hawaiian commoners were allowed to use.

It seems surfboard riding was centuries old by the time Cook arrived. But the sport was soon to all but die out as missionaries arrived, frowned, and demanded an end to such sinfulness. The sins: surfing was done in the nude, by men and women, and to the Hawaiians it was what horse racing is to Australians today — an occasion to gamble.

But the sport survived, mainly because missionary penetration did

not reach the outer islands where the people had no idea that God did not approve. And, as mission influence began to wane, by the turn of the nineteenth century, surfboaring was on its way back.

American visitors to Hawaii tried their hand or, perhaps, more precisely, their feet and balance. In 1908, an American who had been living in Hawaii and had mastered the art, put on a display in California. It became a craze and swept up and down the Californian coast. But, in those days, few realised just how surfing was to eventually sweep the Pacific. At that time, because the boards were heavy wooden planks, hard to paddle and difficult to control on the wave, it was a pastime restricted to the strong.

In Australia body surfing was becoming popular around Sydney but little or nothing was known about board surfing — until Duke Kahanamoku, Hawaiian surfer and Olympic swimmer, arrived in Sydney in 1915. He was only planning to give an exhibition of swimming. But queries from body surfers soon had him shaping a board from a large sugar-pine plank and pushing it out into the breakers of Freshwater Bay. The performance that followed had spectators along the beach roaring their encouragement. Before leaving, the Duke gave his board to a young Australian enthusiast and it has since been preserved in Sydney.

The surfboard bug had come to Sydney. But still in Australia's rolling breakers, only the big men rode — until 1956 when a group of Americans visited Australia with their revolutionary Malibu boards made of balsa and with a fin.

Developed in the US in the fifties, the Malibu allowed riders to change direction at will, ride up and down a wave and walk up and down the board. And you didn't have to be Superman to paddle the Malibu either.

In the years since, hundreds of thousands, probably millions, of young Australians have tried their skill. Australians have won world surfboard riding championships and, for the past decade, have always had riders in there, battling with the best the world has to offer.

Let's face it, Australian surf riders are born lucky. Most of Australia's population grows up near surfable water, particularly along the New South Wales and Queensland coasts.

And, surprisingly, while it may look gigantic to the visitor, Australia has some of the best 'small surf' in the world — a fact which has undoubtedly helped to give Australia its fair share of world champions.

Queensland's Sunshine and Gold Coast beaches are particularly popular all year round because of the sunny, relatively warm winter they enjoy without the summers being as scorching as those further south around Sydney.

It's not surprising now that the rider looking for the ultimate wave is ready to pay plenty to get out and away from the more popular centres. Some of the more central beaches are becoming quite congested. And it's not going to get any better. More and more young Australians are being attracted to a pastime which offers them a way to get fit, a healthy outdoor environment — and never-ending excitement. Some say there's never a wave the same. — *Laurie Kavanagh and Jim Fenwick are Brisbane* Courier Mail *staffers.*

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Black Beauty

It looks like a tree but has no leaves. Fish, not birds, glide among its branches. It is black coral — a hard, jet black skeleton of thousands of minute coral polyps. This treasure beneath the waves is beckoning more and more divers as its appeal grows with fashion conscious women of the world looking for that piece of jewelry just a little bit different.

Black coral can be sawn off by a diver armed with a hacksaw. When it is brought to the surface it is cleaned and dried. Small pieces can then be cut, shaped, carved, drilled — or just polished into wonderfully silky, smooth, gleaming black jewels. Set in gold or silver — or even alone on simple chains — black coral is in big demand.

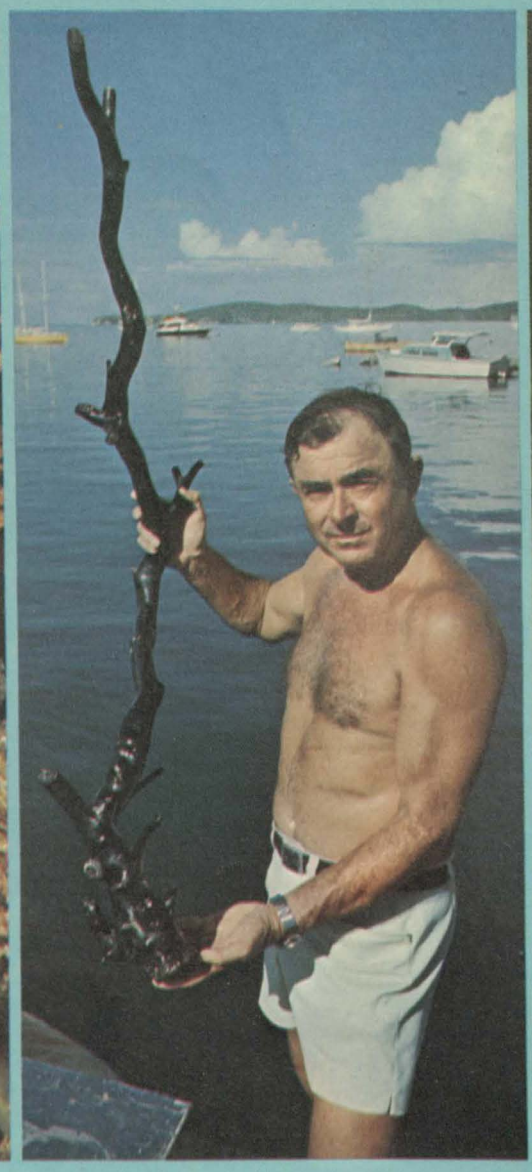
While many items from the sea have been woven into the culture of both coastal and inland Papua New Guineans, black coral was not known in this country until recently. In other parts of the world, particularly in the Mediterranean and the Red Sea, precious corals have been traded for thousands of years.

The Japanese were the first to start a coral fishery in the Pacific after red and pink corals were discovered in 1801. Today that industry has an annual retail value of about K250 million. Black corals are not rated quite as highly but still they can be valuable earners for countries around whose shores they are found. In Hawaii for instance the black coral industry is worth K2 million a year.

Sports divers report that black coral is plentiful in Papua New Guinea's waters. Fisheries biologists and divers are doing a study to quantify resources so that harvesting can be controlled to allow ample time for replenishment.

Fisheries diver Ernie Tarr has found and collected a magnificent specimen in water

A black coral sea whip; **right:** *Miss Papua New Guinea, Sayah Karakuru, shows that black coral is beautiful*



Left and right: *different forms of black coral — only after the polyps die does the black skeleton appear;* **centre:** *Ernie Tarr and the magnificent specimen of black coral he found on a Port Moresby reef*

at a depth of 40 metres very near to Port Moresby. Coral is usually found 50 or more metres down, making its collection hazardous for SCUBA divers. But in Papua New Guinea quality specimens are being found in water as shallow as 10 metres.

Black coral grows only where it is shaded from bright sunlight which means that it flourishes in the depths or under ledges in clear water. However, in some bays where muddy rainwater provides an almost continuous cover over clearer water, samples have been found in shallow water quite close to shore.

Already a small industry has been started by Kara Pty Ltd whose locally trained craftsmen design and mount black coral jewelry for sale in Port Moresby. These are proving popular items and can be made up on the instructions of the customer.

Local divers also collect coral and fashion their own necklaces and ornaments. It is easy material to work with. The only fear, if the amateur black coral workers build up demand too much, is that stocks could not be controlled, some areas perhaps being completely denuded when judicious farming might have made it an on-going industry.

In Hawaii, the fishery is managed by collecting only those specimens over 1.2 metres in height or with a base diameter of 2.5 centimetres. The coral takes about 20 years to achieve this size and will have been reproducing for many years, thus ensuring new stock. Older coral is rarer since it starts to die of natural causes with age and the very large specimens, as found by Ernie Tarr, are much rarer.

For another reason, the collection of the small corals is poor practice. In its younger state, black coral is not impressive. It is much better for one diver to collect a large piece and share it among fellow divers than for each to cut a small piece.

Black corals belong to the *Antipathidae* family. They are characterised by having polyps with only six tentacles. There are different types of black coral 'trees' including the long 'sea whip' which stretches up from the sea bottom like a snake dancer's rope. — *Bob Halstead is president of the Port Moresby Sub Aqua Club.*

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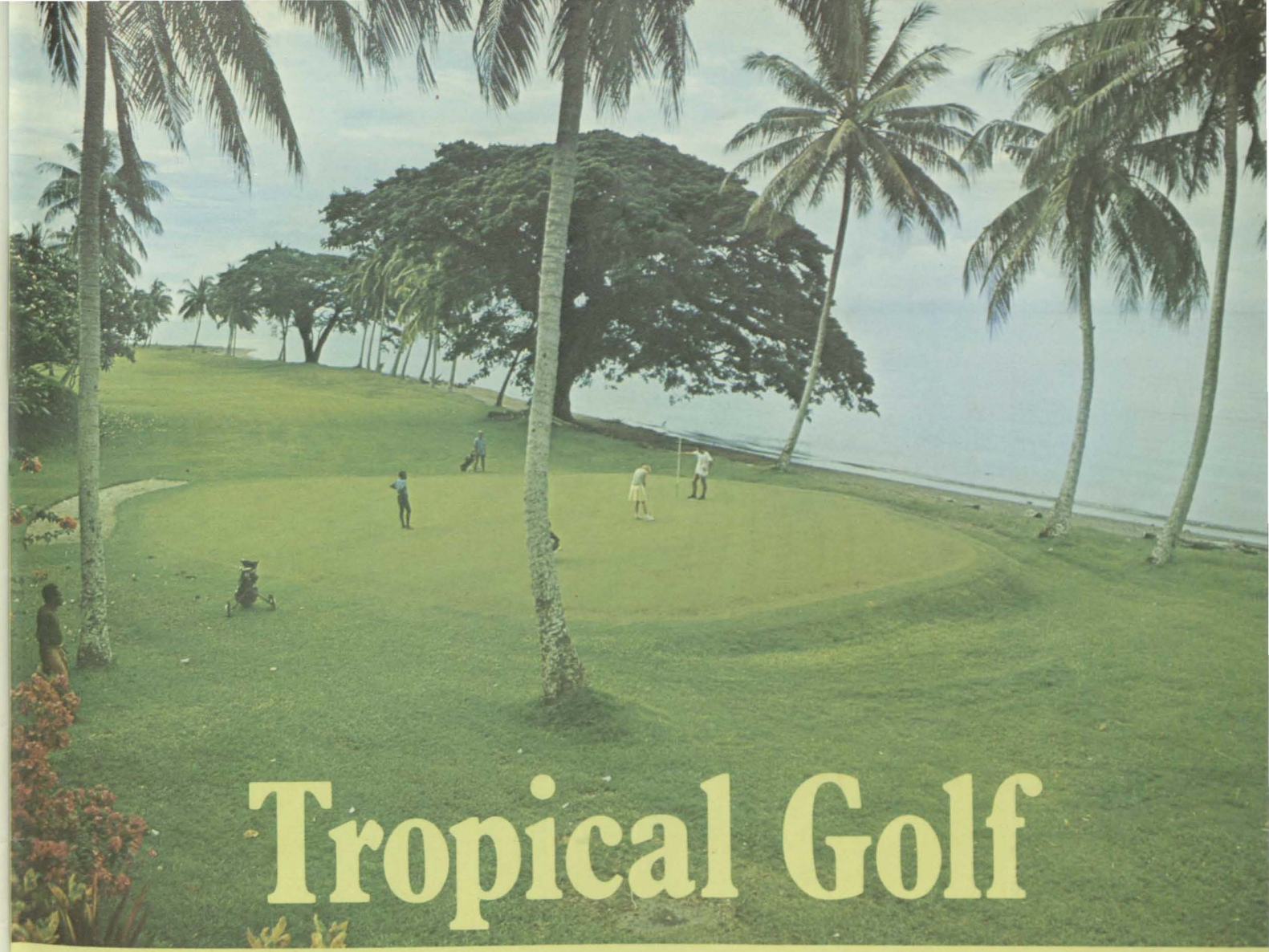


Tropical Golf

Kokopo course along the water's edge a few kilometres from Rabaul in East New Britain Province.

By Alistair Ferris

Golf has found its way into most countries. Papua New Guinea is no exception. Though the country does not have a large golfing fraternity, its 3,000 or so players lack none of the enthusiasm that has made the game one of the most popular sports for men and women, amateurs and professionals.

Though it was the expatriate community in colonial days which brought golf to Papua New Guinea, today many Papua New Guineans are taking to the game, among them PNG's first Prime Minister, Michael Somare, Army Chief General Ted Diro, Police Commissioner Pious Kerepia, Secretary of the Defence Department Tom Ritako, and Minister for Primary Industries Boyamo Sali who played his first golf as a young caddy on Finschhafen airstrip which doubles as a golf course.

Mr Kerepia anticipates that the game will increase in popularity among Papua New Guineans. He would like to see the game incorporated in schools' sporting programs and clubs providing more encouragement for the army of young caddies who watch top players so closely but rarely get a chance to wield real clubs themselves. (Caddies, armed with home-made 'clubs' — bits of piping or a suitably curved stick — can always be seen shaping up to real or imaginary balls around the courses. Many will confidently offer advice to the players for whom they are caddying.)

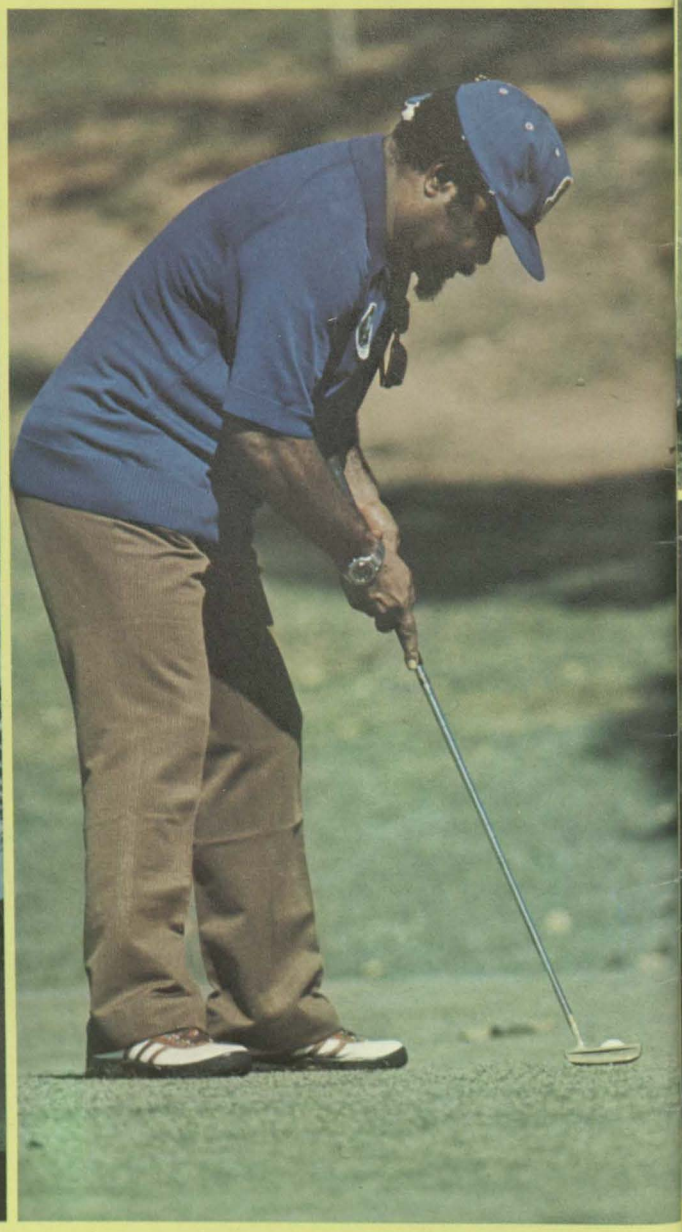
Papua New Guinea has 19 golf clubs. Three — Rabaul, Lae and Port Moresby — are rated championship courses. The sport's future in this country is bright as bigger and better competitions and tournaments continue to draw highly rated professionals and amateurs from overseas.

Golfers in Papua New Guinea share all the pleasures and frustrations of their overseas colleagues. However there is an air of relaxation and friendliness about the people and clubs that scatter the country. The game is perhaps the most unhurried you will find in any country. Perhaps it is the Melanesian culture which is so much a part of a country where people simply refuse to let time dictate to them.

The climate of Papua New Guinea is basically hot tropical but in the highlands, which rise to many thousand feet, the temperatures are often more in keeping with that of a temperate climate. The altitude of golf clubs in the country ranges from just over two metres above sea level at Buka Passage to about 1800 metres at Mount Hagen.

Golf in Papua New Guinea has developed gradually since the Pacific War. There are courses in all major centres, most developed by voluntary labour. In the early years of golf, course ratings were calculated on an ad-hoc basis which presented substantial difficulties, particularly for tournaments. However, in 1965 16 courses were given official ratings.

The prestige event of the year is



Above: *Anyone for golf?;* **above right:** *relaxation for a national leader, Michael Somare putts for par*

the Papua New Guinea Open, held on the Queen's birthday weekend in June. This tournament, which offers K13,000 in prize money, is played over 72 holes at Lae, the country's second largest city.

The Lae course, started in the early 1950s and set in lush vegetation, is among the most attractive in the country. The course was carved out of bush which was once a war-time storage area for American transport and supplies. From a humble beginning in 1951 of six holes, it is now a championship rated 18-hole course.

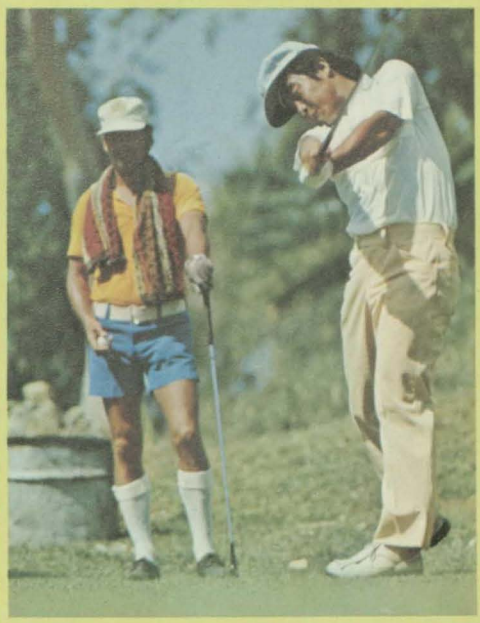
Another major event on the golf calendar is the Papua New Guinea Amateur Championship over the Easter weekend. The 54-hole competition was held in Port Moresby, the capital, for the first time this year following the Port Moresby Golf Club's elevation to championship standard.

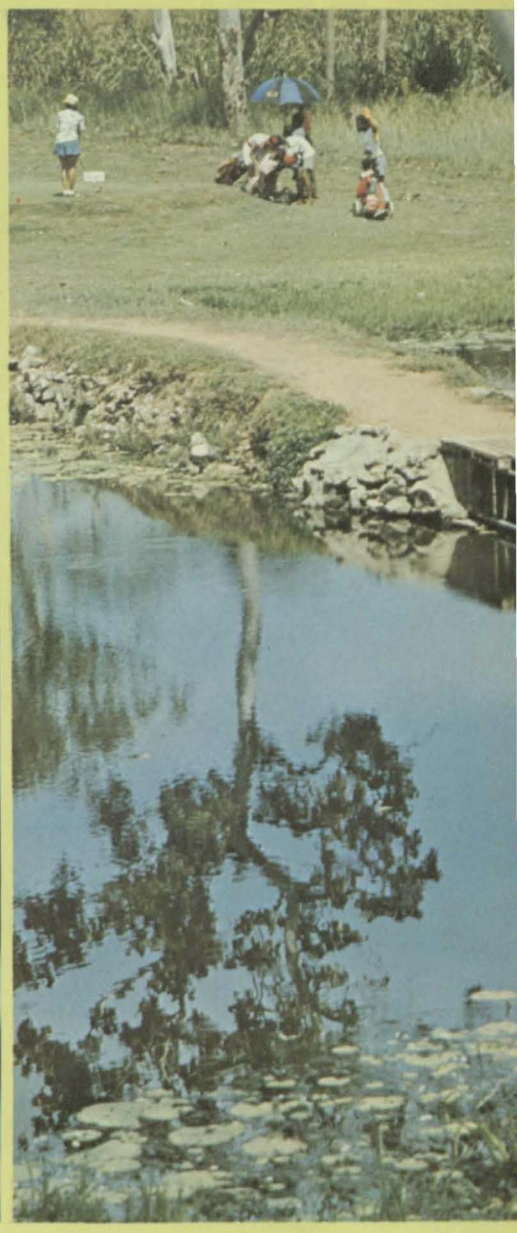
The first course in the capital was laid out in 1930. There have been three Port Moresby Golf Clubs since. The first, a nine hole 'sand green' course at Konedobu, known as Wireless Field, was taken over by the Royal Australian Air Force during the Second World War as a camp site.

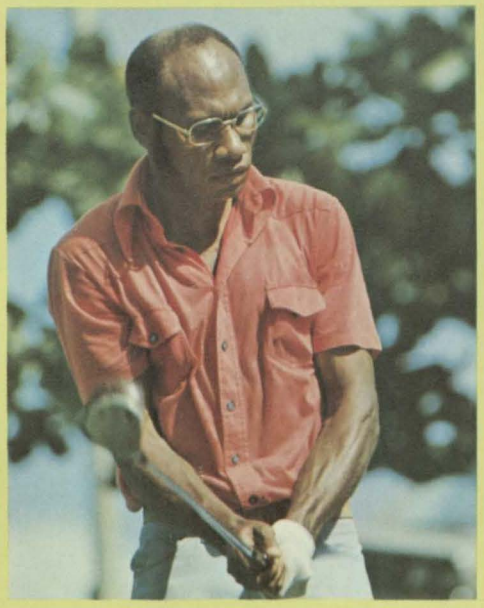
Golf came to a halt during the war but a few years after conflict ended a new course, the Kila course, at suburban Veratu, came to fruition. Built in 1949, the Kila course, also nine holes, was abandoned in 1971. It was replaced by the city's first 18-hole course, this time at Wards Strip, a war-time air field. But it had a short history because a few years later the area was set aside for redevelopment. It is now the centre of government buildings and offices.

The present Port Moresby Golf Club is at Waigani, not far from the old Wards Strip site. It was started in 1974 and, according to club officials, is there 'to stay'. The course, though still in its infancy, is well laid out over 6200 metres. Although it has no bunkers, its hazards are many. A good testing hole is the 16th, a par four over a small lake. The lake boasts several crocodiles but no one seems overly keen to produce reliable statistics on this hazard.

Port Moresby also has a nine hole







Action at the Easter PNG Amateur Championships at Port Moresby, the Waigani Course's first major tournament

course at Boroko. Port Moresby and Boroko clubs compete each year in the City of Port Moresby Open, a 36-hole event with one round played at each course.

Another major event is the annual New Britain Open played at Rabaul. The original idea for the Rabaul golf course was conceived by members of the first Australian Administration in 1915. The course was developed through the twenties and thirties. In 1937 the first of two major disasters struck. Matupi Volcano erupted and destroyed the course as well as the Rabaul township. It was rebuilt in vain because four years later it was again obliterated by fierce fighting.

The course, adjacent to Rabaul's Lakunai airstrip, was used as a major Japanese fighter strip. The area was savagely beaten by US and Australian bombing during the Japanese occupation. It was not until 1951 that the course was ready for play again after completion of the exhaustive task of removing unexploded bombs and shells and refilling bomb craters and tunnels. The course today still holds memories of both disasters. From the first green can be seen the steaming Matupi crater. Hazards, reminders of the war, include a Japanese command bunker on the first fairway, a steel pill box on the third and concrete bunkers on the fifth.

Most golf clubs in Papua New Guinea are private courses but visitors are always welcome. Green fees are cheap and caddies are in abundance. Young boys, some already accomplished golfers, are always eager to follow players around for a small fee.

The assistance of a caddy can be invaluable. When they talk of 'rough' in Papua New Guinea they mean it. With tropical rains, grass growth is enormous. Kunai grass, which surrounds many courses, grows to over two metres. The caddies who are as fearless as they are enthusiastic almost invariably emerge from the grass wilderness with a smile — and your ball. —

Alistair Ferris, First Secretary (Information) at the Australian High Commission, Port Moresby, is an Australian Information Service journalist.

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