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paradise

Welcome aboard

As 1981 draws to a close our thoughts turn to a Western festival – Christmas – which is very much a mixture of fact and myth, Christianity and paganism. This issue of Paradise also has a sizable sprinkling of Papua New Guinea's own cocktail of fact, folklore and superstition. In particular we present two remarkable stories – Waldon's Papa and Sialum – which will give you a vivid insight to the way in which we people of Papua New Guinea have developed such a close and loving relationship with Mother Earth and the many life forms which our island has been lucky enough to provide home to. I'll say no more except to invite you to read on and to wish you all the compliments of the season and happy travelling in 1982.

Joseph James Tauvasa
General Manager

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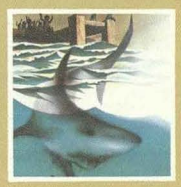

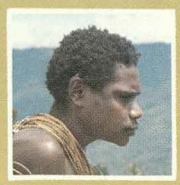

Cover: Children of Fergusson Island come alongside the Melanesian Explorer on a visit to Milne Bay Province. Photo: Tom Cooke

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Music and ceremony play vital roles in the life of Trobriand Islanders

Malcolm Kirk

Trobriands Music

The Trobriand Islands, far out in the Solomon Sea, are still an anthropological Mecca; they have been grossly cliched as 'The Islands of Love'; they also are the source of a rich store of music, closely woven into the fabric of the community.

By Les Maclaren

PERHAPS it is because their home is a group of remote islands, still difficult to get to, that the people of the Trobriands (or Kilivili or Kiriwina), have so completely preserved their own philosophy and culture, and been so resilient in the face of outside influences.

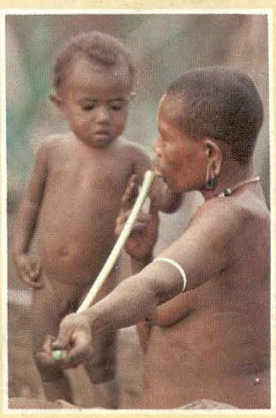
About 90 villages are linked by marriage and trade – most significantly the *Kula* trading tradition – with the overall community still governed by a council of chiefs.

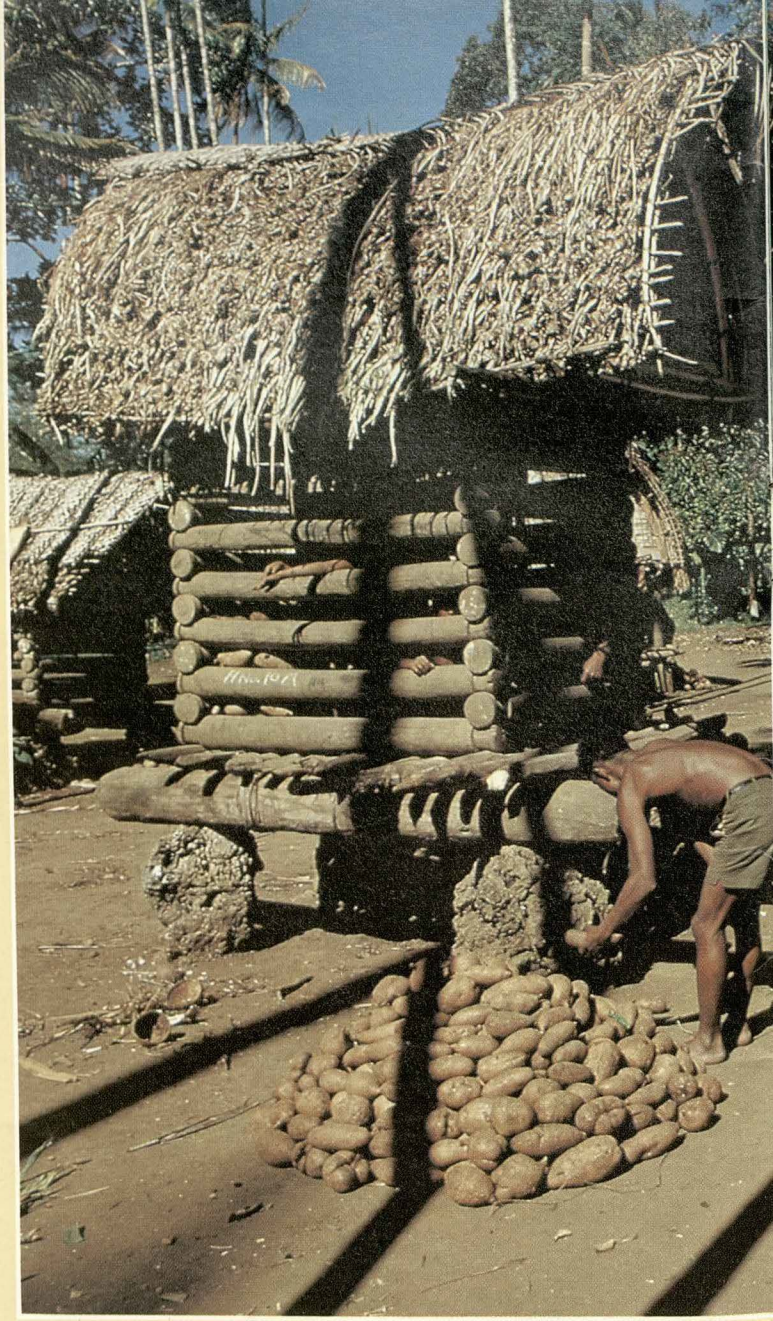
I was among the Trobriands people as a member of a film group working in association with the Institute of Papua New Guinea Studies. Our mission was to film traditional music in authentic surroundings and to convey the close links between the music and the ceremony that is Trobriands life.

Doyen of Trobriands minstrels is Sebwagau. He'll sing anywhere, any time, simply for the joy it gives him – and, perhaps, for a little betel nut.

Sebwagau, trained by the islands' previous 'master of song', paid a handsome price for his training. The climax was a magic potion which, presumably, put the final seal on all the skills and knowledge he had acquired.

Sebwagau is famous throughout the Kiriwina for the breadth of his repertoire, his insight and talent for improvisation, and





Right: *stocking yam houses;* **inset:** *the low-lying Trobriand Islands;* **far right and below:** *preparing for the ceremonies*

the golden edge to his voice. These, and most of the other words I cite, are from the lips of Sebwagau, keeper of the people's music:

Destroyed
Our chief has become derelict
Gossip has emptied the yam house
People sad
Ruined our chief with bad talk
The chief yamhouse destroyed
Sad news spreading

Primarily, Trobriand Islanders are gardeners. Social and economic success depends largely on the fertility of one's garden. A plea to the gardener's enemy:

Caterpillar
Don't kill my growing taro
We depend on it
To live
Our growing taro, brother caterpillar
We need it to live

Sebwagau says he sings this song in his garden, not because it has any magic but simply as an expression of the hardship and despair a gardener must suffer from time to time.

Yams, especially taro, are the most important crops. The word for yam is *te'tu* which, significantly, almost means 'a year'. Trobriands social activities and ceremonial are dependent upon the gardening cycle.

No one can have a successful crop without the use of magic in addition to being exceedingly skilful cultivators. To give power to the soil, *kamkikila* – pyramid structures – are built in the corners of gardens. Every village has a garden musician who, to qualify for the job, must be an expert gardener. He is known as *towosi* (literally, 'man, singing'). He is believed to have inherited powers and secrets which play a role in controlling the forces of fertility. Power is given to the soil as the *towosi* chants:

Power, strength
I put power
Into the soil
Nourishment, abundance
The belly of our garden swells
Swelling, swaying
With excessive weight
What tuber is this
Growing wildly
Like fire

The *loloni* is a flute very simply and quickly made from a pawpaw stem. It is a whimsical instrument and is a common sound in the village and in the garden. Most people can play the *loloni* but the specialists are the younger single men.

A young *loloni* player will compose and develop his own melody until it becomes, virtually, his signature tune. Villagers will know by the tune who is playing. And when a young maiden hears the *loloni* in the bush near her home she knows exactly who is wooing her:

Emerging, emerging
Like the full moon
Yearning, my friends
She has chosen me
Radiant, like the full moon

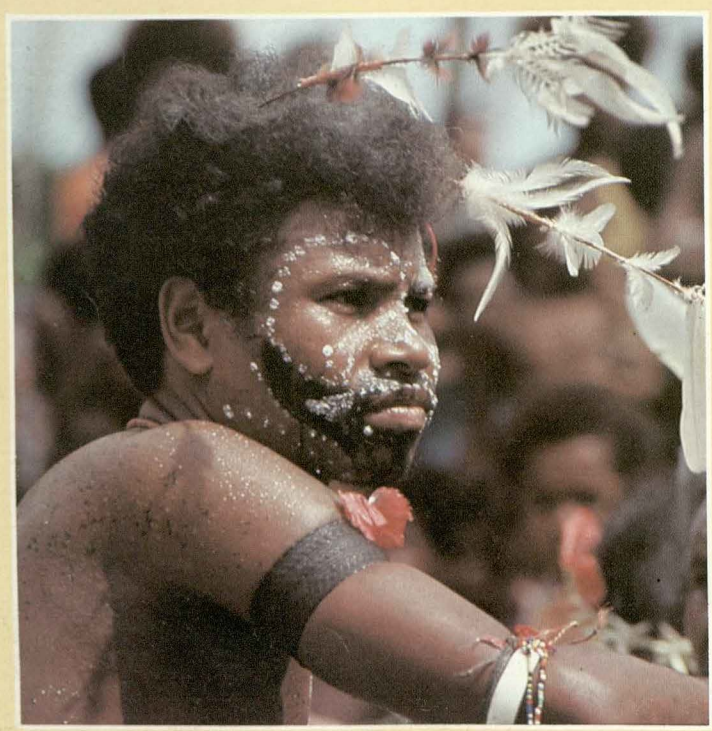
In affairs of the heart, there are different levels of magic from simply infiltrating 'his' and 'her' dreams to the wearing of flowers and scented herbs. Songs are used to charm both boys and girls:

Threading flowers
Like beautiful foams
On wavetops
Green parrots singing beautifully
Preparing flowers of enchantment

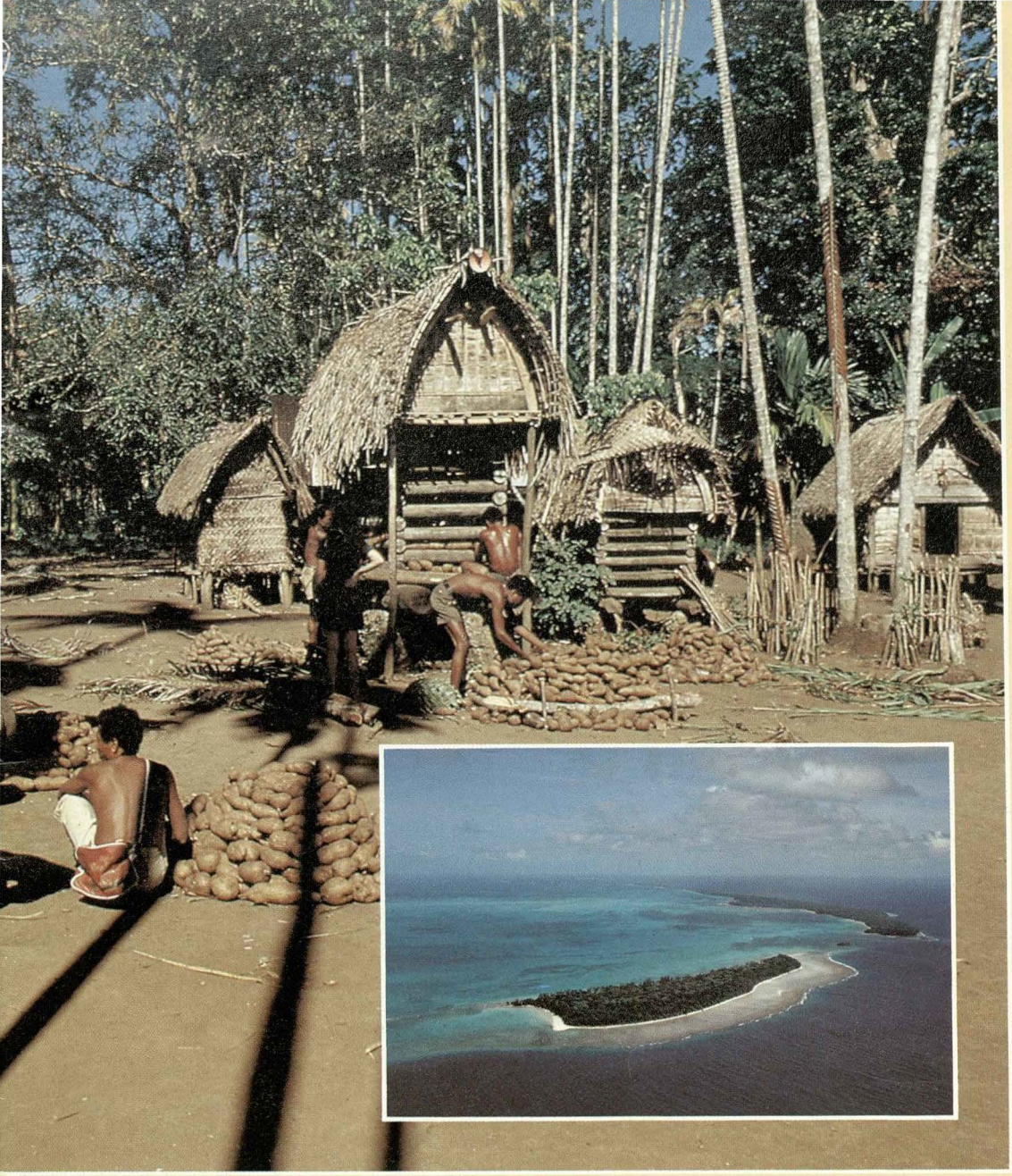
From the romantic to the ribald:

You Yogurivana, hiding man
Always hiding
In the grass skirts of women
Your persistent need
Hiding in the grass skirts

Malaa mala is the festive season. This is when the best of the harvest is brought to the yam storehouses. This involves a complex social web of giving and receiving. The younger people ceremonially bring the harvest from the gardens. The boys enter from one direction,



Tom Cooke



Malcolm Kirk

the girls from another. All are costumed for dancing. Their baskets filled with yams, they chant as they dance the *mweki*. The boys torment the girls by chanting about a much sought after single girl:

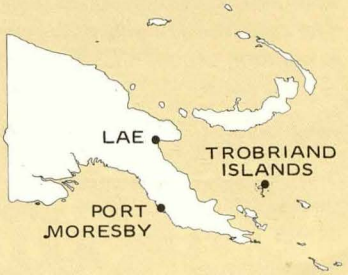
I'll make love to Nakedoga
Do it to me Nakedoga

The girls chant back, of Lewaverka, Nakedoga's male counterpart:

I'll do it with Lewaverka
We won't bother to lay down
Lewaverka, let's do it standing

Most nights during *Milaa mala* there will be *kalibom*, an erotic matchmaking, mainly for adolescents. A chorus of singers and drummers form the centre while dancers move around them in vibrant activity lasting until near dawn.

There is no dancing in villages where there is still mourning but those in mourning simply go to another village for dancing and feasting.

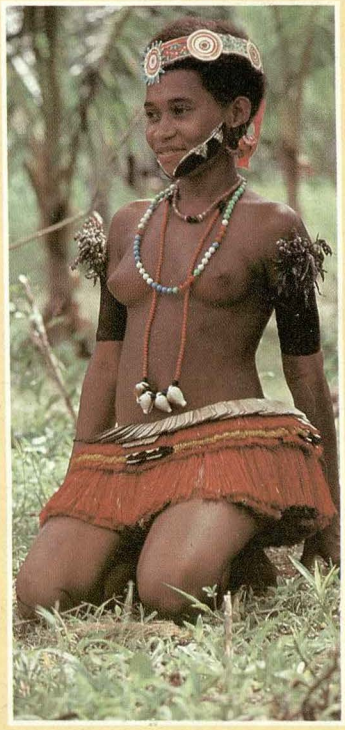


During a mourning period, relatives gather in the darkened houses of the deceased, usually near dawn and during darkness, for *valam* (crying). Although a Trobriander does not regard the *valam* ritual as music, to an outsider it is a haunting lament. There is a basic melody line which provokes an extremely emotional reaction. The lyrics and dialogue are spontaneous and personal:

You are my basket (all my precious things)
Memories
The winds sadden me
Leaving me in Bweyowa
(land of the living)
Take me with you
Oh, my grief

Gana is where the land, sea and sky meet. It is the threshold between the *Bweyowa* and *Demwana*, the paradise of the ancestors. When people die in the Trobriands their spirits travel through the three horizons of *Demwana* – *bomatu*, *budi budi* and *tuma* – to the final paradise. There is no hell.

Birth is associated with the regeneration of a kin spirit which crosses back into



Tom Cooke

Tom Cooke

Dancers from Kaibola village, entertain visitors to the Trobriands

Bweyowa. There are also those with the magical knowhow to travel from *Bweyowa* to *Demwana* and back. While they are in *Demwana* they can commune with the ancestors and, through temporarily heightened perception, are able to learn songs and dances (virtual operettas) in a twinkling.

Bwetayobu is a dance which has been brought back from *Demwana*. It is a formal, dramatic celebration and a re-creation of the metaphysical world of *Demwana*. The dancers encircle, in a single line, the orchestra of drummers and singers. The rhythms are precise and complex in terms of musical time signature. (The drums are hour-glass-shaped and arranged in pairs. Two are bass, two are smaller and higher-pitched and a fifth is a miniature, beaten with one finger. It gives a loud snapping sound).

Kasaiwaga is a totemic dance depicting a beast, bird or fish. It has a similar drum chorus and rhythm to the *Bwetayobu* but only three dancers. *Kabalula* village dances *Kaimagu*, the crab.

The *Kula* trading circle is a cultural and economic alliance which operates in a fixed ring of distant islands, mostly in the Solomon Sea, including the Trobriands. It involves exchange trading of two kinds of shell ornaments – *bagi* and *mwali*. A man will trade only with his established partner. The *bagi* move in one direction, the *mwali* in the other. Although it is now clear that there is a firm cyclic pattern in *Kula* trading, the individual trader has no concept of this pattern. He simply trades with his partners. Each *Kula* piece has its own name and fame. *Kula* ceremonial, of course, is responsible for generating trade in many other commodities. A song of *Kula*:

News has spread
Of our expedition
Going to Woodlark
Dancing with mwali
Displaying them
In the dance area
Staying till daybreak
On the beaches
Our song
It pleases their chief

Traditionally large fleets of ocean-going canoes, the great *masawa*, embarked on epic voyages across the treacherous Solomon Sea in pursuit of *Kula*. The construction and sailing of a *masawa* canoe, requires the skill of specialists – craftsmen, navigators, sailors and magicians. Tribute is paid to *Buribwari* and *Magisbubu*, the protecting omens of the ocean whose images are carved into the bows of the *masawa*:

Masawa *canoe glides*
Planing
Sails set like butterfly wings
Planing
Our man is Buribwari
Our bird is Maisubu

The prowboards are shaped only by master carvers. They embody magical powers which will protect against shipwreck and ward off evil spirits.

To Trobriand Islanders, aesthetic values are a major influence in their daily lives. Body decoration, poetry, dance and music are all a measure of their cultural pride and perception.

– Nomad Films have produced a film trilogy on traditional music in Papua New Guinea embracing the music of the people of Lake Chambri on the Sepik River, the Trobriand Islands, the Kukane of Simbu Province and the Huli of the Southern Highlands Province.

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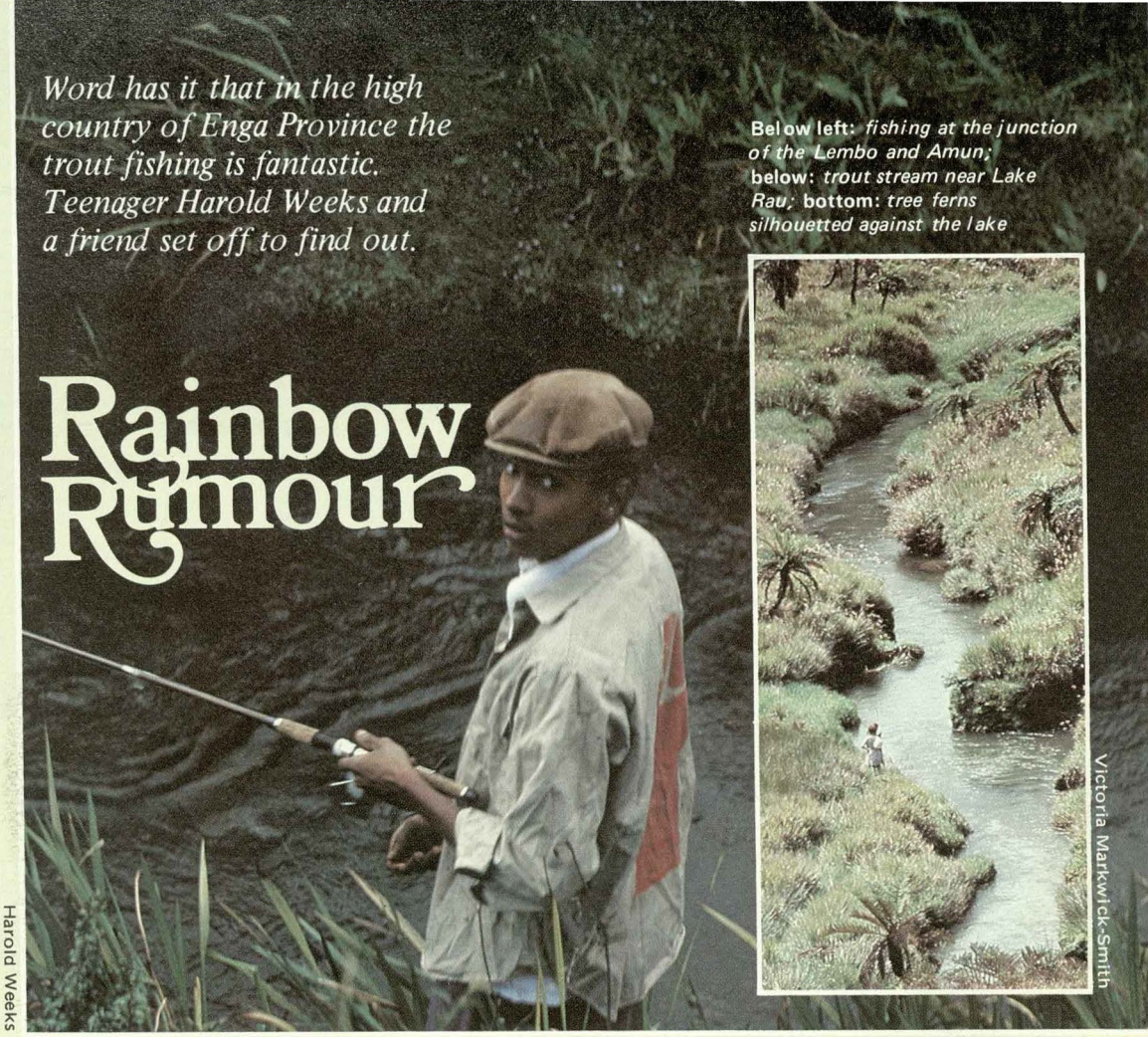
Rainbow Rumour

Word has it that in the high country of Enga Province the trout fishing is fantastic. Teenager Harold Weeks and a friend set off to find out.



Harold Weeks

Victoria Markwick-Smith

Below left: *fishing at the junction of the Lembo and Amun;* **below:** *trout stream near Lake Rau;* **bottom:** *tree ferns silhouetted against the lake*

NO one actually lives in the valley for which we were heading. Papua New Guineans rarely live above 2500 metres; our objectives were the rivers at about 2900 metres which run around a crater lake named Rau.

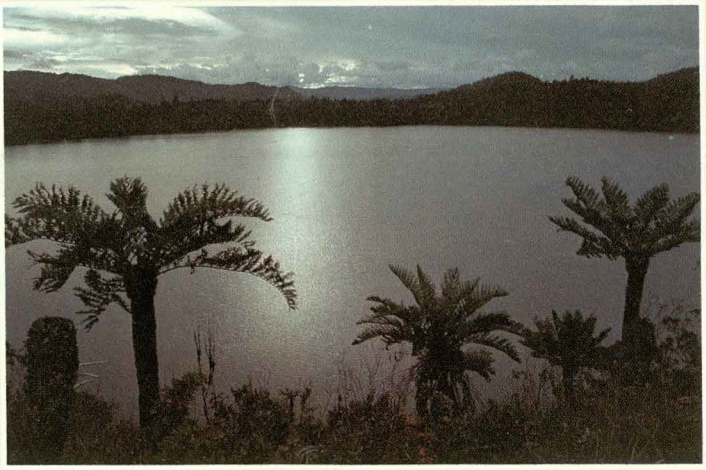
The trout had been put there in the mid-seventies when rivers and streams all through Papua New Guinea's Highlands areas were stocked to give the people an alternative source of food.

I had fished all through the Southern, Eastern and Western Highlands without any luck. Either the streams fished had been over-fished or the trout had been washed out by heavy flooding. Still, I wasn't about to give up in my quest to land a rainbow trout in Papua New Guinea.

We started our walk from Pumas agricultural station which is about 90 minutes drive from Wabag, capital of Enga Province. Vern Burley, a *didiman* (agricultural officer) at Pumas, drove us to the end of the road where we were met by three Engan friends and three guides. They all wanted to come with us, not just to see Lake Rau but also to go higher to gather pandanus nuts and hunt marsupials.

We climbed to a ridge at just above 3000 metres and then plunged into rainforest. A muddy path sometimes became almost indistinguishable from the dense bush. We pressed on for 3½ hours, mainly following ridges, stopping a few times in clearings for a rest and a nibble at our food supplies.

The ridge trail ended at the edge of the valley we were heading for. It was a clear day and the valley looked much larger than we had expected. It was sprinkled with small hills and surrounded by high ridges like the one we had just come off. We were able to follow the course of the Lembo River, and, not far off, but away from the main trail, was a long cliff over which flowed many small waterfalls. The valley was full of



Victoria Markwick-Smith

short grass and a tree fern with thick bark and scaly leaves. The only signs of man's presence were large black areas which had been burnt by hunters.

We could not see Lake Rau but Ken Vern, an Engan working as a rural development assistant at Pumas, said it was not far away; just hidden behind the rim of the crater. Ken had come along specially to check experimental high altitude potato plots which had been planted some years earlier.

When we got into the valley we discovered that the 'small' hills were not as small as they had at first seemed. A family from Pumas joined us but soon headed off in another direction in search of *kapul* (opossum) and karuka nuts.

Not only is the valley important as a source of food; it also is a crossroads for Kandep and Laiagam on one side and Wabag and Wapenamanda on the other.

In these grasslands the rivers meander merely quickly; not in the thundering, foaming fashion usually associated with Papua New Guinea's Highlands rivers and streams. From this valley rivers run in three directions – north and west to feed the Lagaip, Strickland and Fly Rivers; north and east to the Lai, Yuat and Sepik; and south into another Lai River which eventually joins the Purari which flows to the Gulf of Papua.

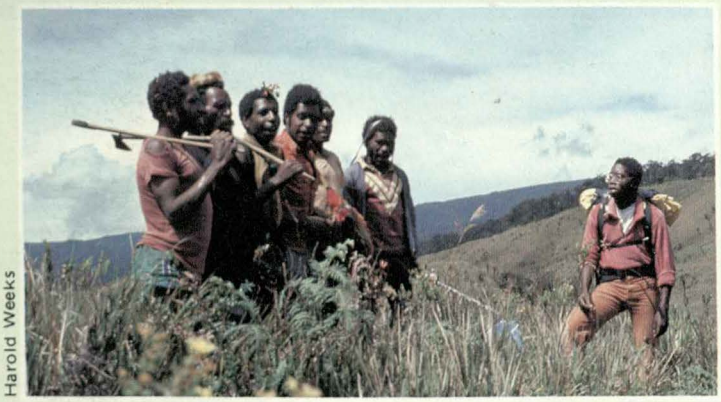
Our companions were keen to press on to the edge of Lake Rau. It took another four hours. It seemed the valley would never end and Lake Rau was always 'just over the next hill'. Toward dusk we cleared a steep hill which turned out to be the edge of the crater. My exhaustion was worth it: the lake was much larger and far more beautiful than I had anticipated.

About two-thirds of it was surrounded by rainforest while the rest was bounded by grassland. The crater sides were extremely steep. We cut a path into the rainforest where the men found a relatively flat area. Inside two hours they had built a large shelter of poles and bark. It had two doors because the married men in the party were not allowed to step over single members.

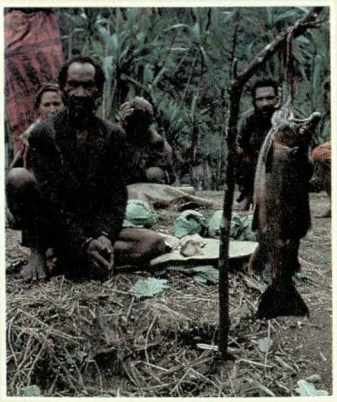
Next day it took us more

Reflections in the crater lake; **below from left:** *pausing for a breather in the rare mountain air; seven kilos of glorious rainbow; caught and cooked in a twinkling*

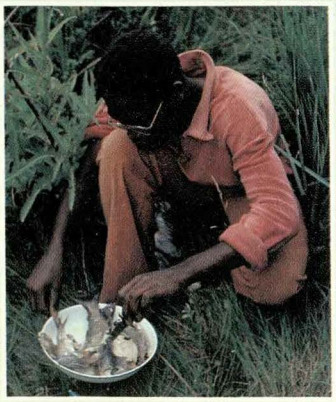
Victoria Markwick-Smith



Harold Weeks



Sheldon Weeks



Harold Weeks

than an hour to walk to the spot on the Lembo which we had selected for fishing. We had a number of rods, spinning reels and light trout lures, including a lure which had been recommended by Tom Reeves of the orchid centre at Laiagam. At first we were out of luck but trout certainly were there, each of us losing out on strikes. Then Ken landed a handsome rainbow. It was cause for celebration. We built a fire and cooked and ate the rainbow.

Back at camp we found the rest of the party had failed to catch any *kapul* but had found plenty of karuka nuts.

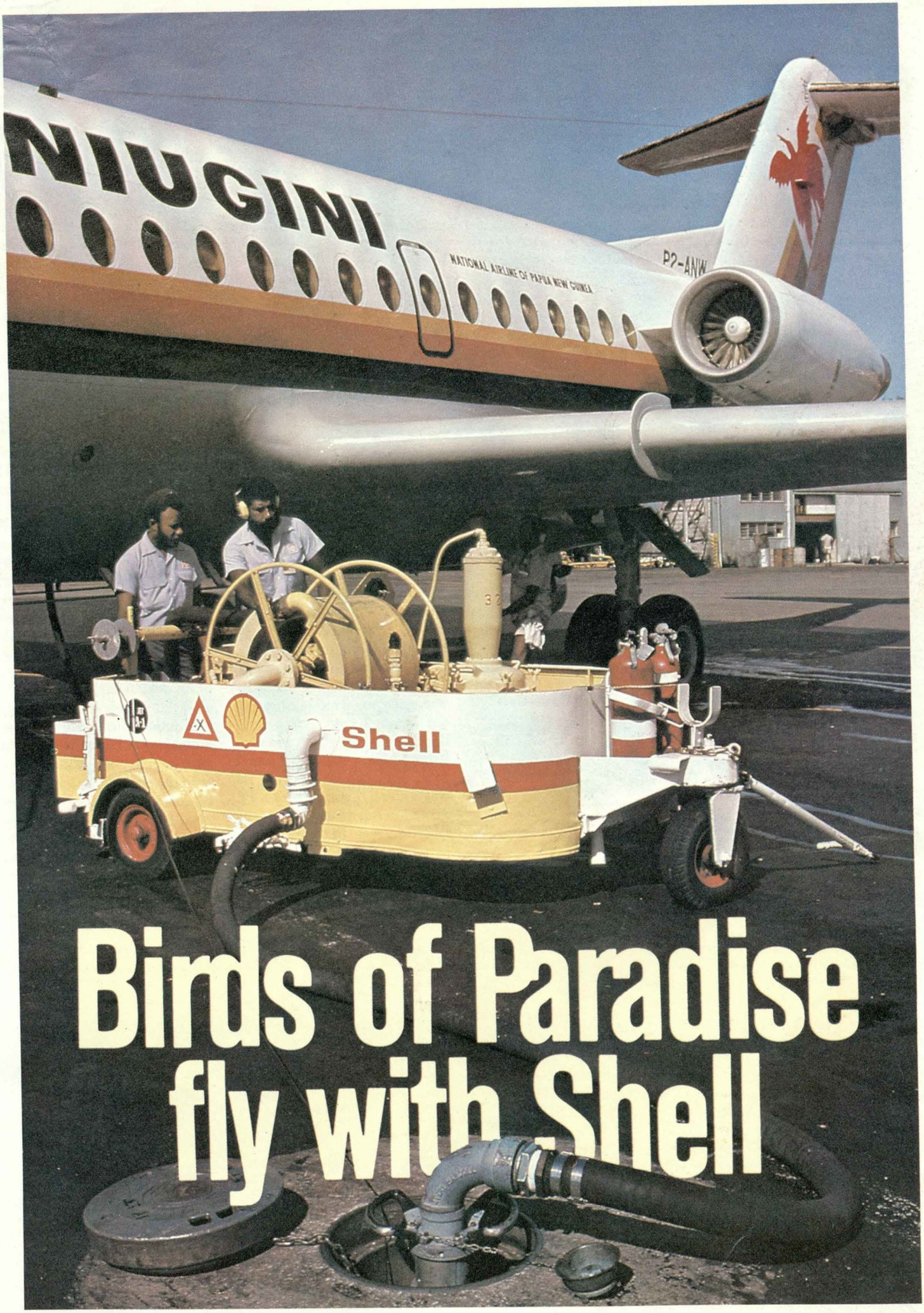
As we were breaking camp on the third day I asked Tambia Kakane, a trainee with the Department of Primary Industry at Pumas, what he knew about Lake Rau. He understood that an underground river took water out of Rau, under the ridge and into the Lagaip River. If this is the case it means it is possible for trout to find their way into the lake. I was disappointed I had not tried to fish it.

We walked back across the valley for 1½ hours, finding the Lembo swollen by rain and more than a metre deep. We got wet and a bit cold but the walk on to the Amun River soon warmed us again. At the Amun we split into two groups. Jerome, Ken and myself headed downstream to where the Lembo and Amun meet. Along the way Jerome caught his first rainbow, Ken two, one of which was about 30 centimetres and 15 around the girth, and I caught my first rainbow in Papua New Guinea. It came in at 28 centimetres, 15 around the girth. We stopped and cooked all four fish for a late lunch.

As it got dark we headed toward where grassland becomes forest above the rivers. The other party had built a new pole and bark shelter. Along the way we met one of Ken's *wantoks* (friends) who had caught 10 trout with worms. He gave us four of his fish. They were very welcome considering we had over-indulged and the food supplies we had brought in with us were running very low.

We thought we had done fairly well considering it was our first visit. Not only had we caught trout; we had been entranced by the stark beauty of this lofty valley on top of Enga Province.

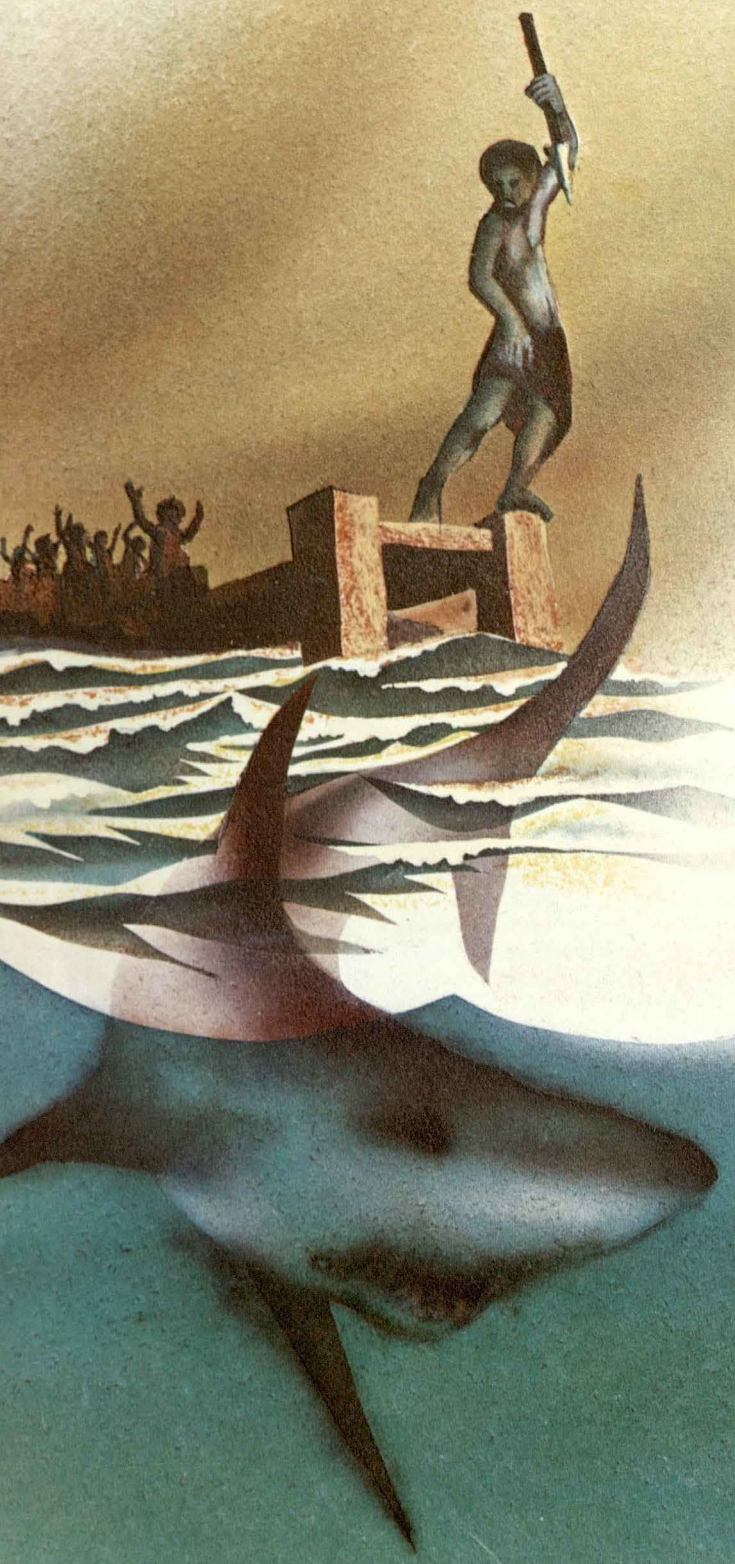
And, if there were any lingering doubts about making a return visit they were dispelled when we came upon an old man with a rainbow for sale for Kina 10. It was enormous, at least 75 centimetres long and weighing about seven kilograms. – *Harold Weeks is a student at the Port Moresby International High School.*



Birds of Paradise fly with Shell

Waldon's Papa

By Reg Beasley



Many Westerners would dismiss this yarn as superstition. But Papua New Guineans and many foreigners who have lived in Papua New Guinea would be reluctant to reject it out of hand. The story of Waldon's Papa is based on the writings of Reg Beasley who died in 1973. Reg Beasley came to New Guinea in 1921. He packed a lot into his next 10 years before leaving, never to return. It was while he was working on a coconut plantation on Woran Island to the west of Manus that he gathered his information on 'Waldon's Papa'.

THE schooner, *Malanburi*, skippered by Harry Macey, came to Maron to work in the area. It was Macey's first trip in the islands and, on the district manager's instructions, I went aboard, made myself known and invited Macey to mess with us that night.

It was dusk when the skipper came to my bungalow. In the gloom I could see a diffident form on the verandah behind him. I thought it was a man from the labour line. He was a scruffy-looking bloke. I'd made it a rule that if any of the labourers wanted to see me after sunset they had to contact my personal servant, Mati, who would decide if it was necessary to bring the matter to my notice or if it could wait.

Macey must have guessed what was in my mind because, as I moved to pass him, he explained that it was his personal servant, Waldon. He did so with some embarrassment which showed in his blush to the roots of his golden hair.

Waldon, about 16 years old, was untidy, dirty and every rib showed. His *laplap* (loincloth) hung on his bony frame as if it were the first he had ever worn. He looked anything but a personal servant – especially by standards set on Maron.

On the way to the 'House on Top' – the residence of the district manager – Macey explained how he had come by Waldon.

Just before leaving Rabaul, which is away to the east of Manus, he had walked into the

town to get his papers and final orders. On his return to the *Malanburi* he had found Waldon on board. The crew were feeding and teasing him simultaneously. They said he was an orphan, was hungry and wanted a job. Feeling sorry for him and not having a servant at the time Macey had taken him on.

Some weeks later I was out on the plantation when an excited bunch of cooks and copra cutters raced up to me and begged me to come down to the wharf to stop one of the staff from shooting 'Waldon's Papa'. I knew nothing about any father of Waldon but the frenzy of the boys caused me to beat it hotfoot for the station. There I found some of the staff and a number of thoroughly aroused labourers congregated near the wharf. On the wharf stood Bert Jackson with a .303 rifle in his hands, scanning the waters of the bay. 'What's the matter?' I demanded as I raced up to him. 'Look,' he said, pointing. 'I'm trying to get a shot at it.' I saw the dorsal fin of a large shark slicing the surface of the lagoon.

The labourers all crowded round me (as their boss) talking excitedly and earnestly. A number of the crew from the *Malanburi* were there too, and the bo'sun, pointing to the shark, said *'Masta, em sak hia papa bilong Waldon. Masta noken siutim em.'* (Sir, that's Waldon's daddy and the Master must not shoot him). Then the crowd took up the cry: 'He's not to shoot Waldon's daddy.' So I asked Jackson to put the rifle away.

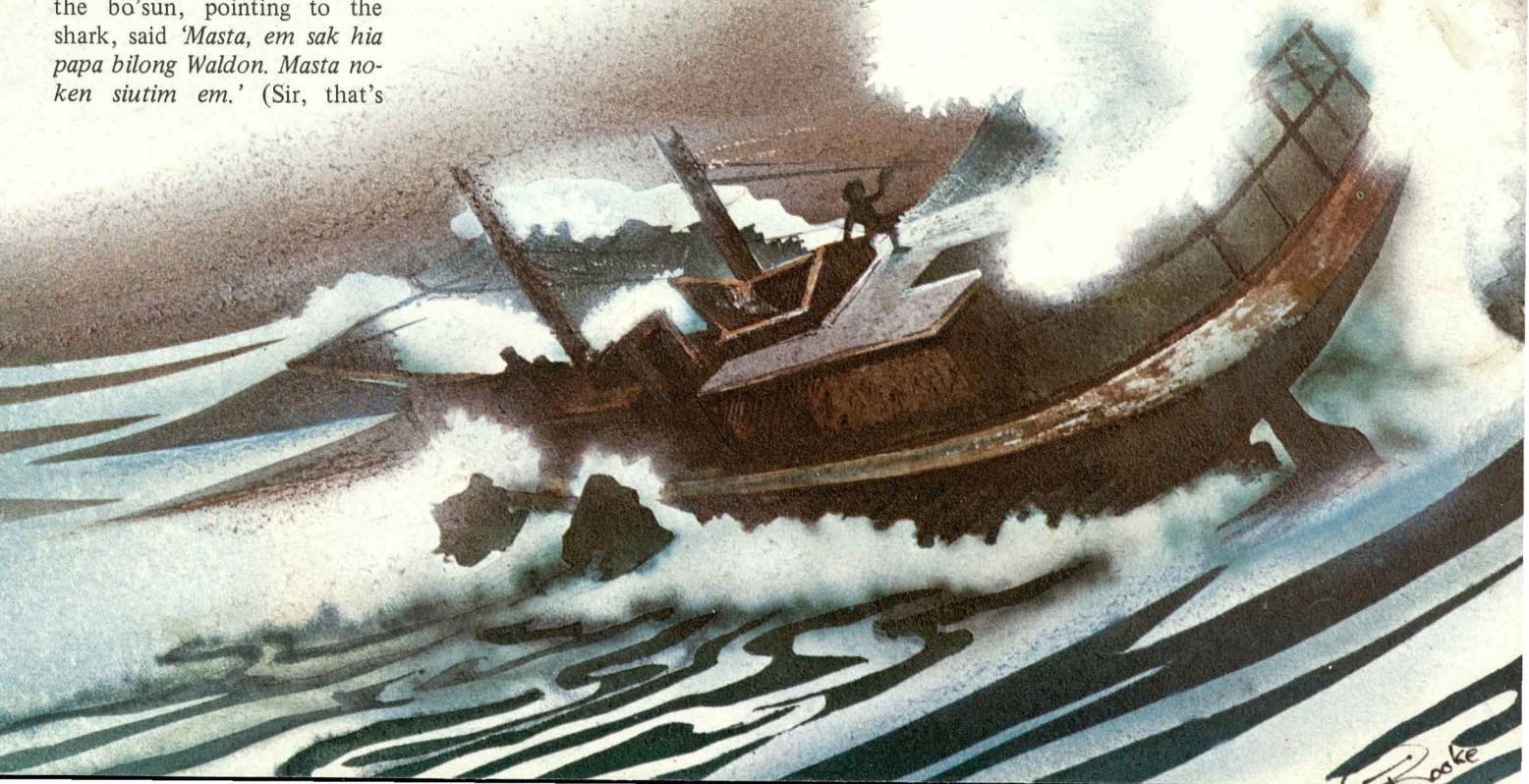
Macey had joined the group and, as I turned and saw him with a big grin on his face, I asked him what he knew about the matter in view of the fact that his crew were most vociferous, about preserving the shark. 'I'm pretty certain that the shark followed us all the way from Rabaul,' he said. 'He appeared just as we came out of the harbour and the crew announced that it was Waldon's Papa coming along to watch over him. They fed him all the way with scraps from the galley.'

Waldon undoubtedly told the crew that his clan animal totem was the shark and accordingly it was forbidden to him as food. A man's *pisin* (in this case a shark) was often known to keep watch over him like a guardian angel or any friend's guardian angel. And who would allow anyone to knock off his guardian angel or any friend's guardian angel for that matter? (Later, in the high mountains of central New Guinea, our party had nothing to eat for days but smoke-dried goura pigeon. One camp staff refused to eat any of it because it was his *pisin*. Pressed by the other 'gunboys' to eat up because there was nothing else, he shouted at them: 'What the hell do you want? You want me to die?')

After death, it was known that, in a lot of cases, the soul took on the body and form of the clan totem in order to protect and preserve the clan and its members. It was appalling, sometimes, the risks that members of the crocodile or shark clans would take with their totem animals. Risks to us, that is. They firmly believed that they would never be harmed because the clan never offered any harm to the animals who, in most cases, were deceased relatives and ancestors.

Waldon's father had, after his death, entered the body of a shark and had come on this long journey from Rabaul to watch over his *pikinini*. The crew of the *Malanburi* believed this and so did the labourers on Maron, hence the excitement when Jackson prepared to shoot the shark. We laughed a bit that night at mess but from then on everybody took a keen interest in Waldon's Papa. The shark never appeared except when the *Malanburi* was at Maron.

One day the *Malanburi* dropped anchor and there was no shark. Waldon had been put off at hospital in a neighbouring group at Longan. I chaffed the crew and ventured that the shark had grown tired of the islands and had gone back home to Rabaul. They were deadly serious as they told me that, naturally, the shark was at



Longan to keep an eye on his *pikinini*. Next trip, Waldon was on board and again the shark cruised the lagoon.

Many an evening from the men sitting on the wharf – fishing and yarning – the cry would go up: 'Waldon's Papa is coming!' And swimming lazily along would come the shark. The men would throw it fish, and sarcastic remarks would be shouted to the schooner (anchored a short distance away) to tell Waldon his father was hungry and that he should give it more food. A number of times I pushed it off with my foot when it brushed up against the piles of the wharf.

On more than one occasion I watched Taundri, the station cook, wade knee-deep into the water off the labour lines, bang a kerosene tin and, when the shark swam slowly towards him, throw it the rice and fish left over from the last meal.

The *Malanburi* was to return to Rabaul for an overhaul and Macey asked me to buy for him all the stick tobacco that I could. He'd already bought two caddies of 30 pounds each but the storekeeper would not let him have any more.

What do you want all that twist for?' I asked. 'They're clean out over at Mussau. If I get enough, it will be worth my while to slip across. I reckon I'd make a fiver a caddie,' he said.

When I mentioned the obvious (that Mussau was well off the route into Rabaul), he just grinned and said he would take care of that as long as I kept mum. I got him extra tobacco through the store assistant, Jackson, and off went Macey.

Some days later a norwester blew up. Coming at the change of season, it was dirty but of short duration. On the second day it was easing and, seeing a commotion amongst some boys near the wharf, I ran there in the driving rain to stop the row. On the wharf decking was a three metre shark. A Manus Islander, named Sikis, had the job of keeping the station well supplied with fish. Normally, all the fish taken from the lagoon were dynamited but because of the bad weather he hadn't been able to get any. Seeing the shark swimming close to the wharf, he had speared it. It was Waldon's Papa.

That evening my head *bosboi*, Yemi, came to the bungalow and told me all the boys were *kros tumas*. There was a lot of talk about making Sikis 'savvy'. I ordered him to keep a sharp lookout for trouble but, as nothing happened during the days that followed, I put it down to so much hot air from a group of hotheads. Then, about two weeks after the shark had been speared, Bob Palmer ran in on the schooner *Ida*. He told us Macey had piled up the *Malanburi* on a reef near the tobacco-less islands.

One crew member had been drowned – Waldon.

The *Ida's* crew soon spread the news and, when the labourers returned to the lines that evening, a brawl started. Sikis was blamed for the death of Waldon. For days bickering went on. Sikis and his island friends were out-numbered by the mainlanders 10-to-one and they were having a bad time. An island man threw a tomahawk and it was on for young and old. Yemi rushed into my bungalow, blood streaming down his face. 'Master, Master, come quickly. They're going mad.' I flew amongst them wielding a heavy rattan cane. Something had to be done and quickly – something more than threats. Far better that than tomahawks and knives.

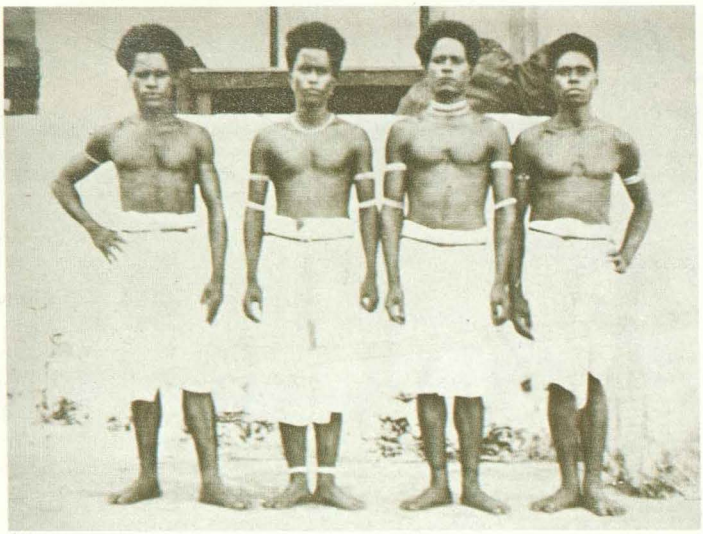
After the dust had settled I learnt that Yemi was not the target for the tomahawk but another bloke who ducked and so it skidded off Yemi's scone.

A little later I was in Rabaul when the *Malanburi* was on the slip being repaired. I went down to see Macey. This is what he told me.

He was cutting away to the eastward of his course to Rabaul when the blow hit him. He reckoned it would be just the thing to run before it because it would give him a sound reason for being off course. But it was more than he bargained for. Raging down the coast of North East New Guinea, the gale swept him off his tobacco course and on to the reefs he thought he was well clear of. His first warning was a hail from the lookout when they were almost on it. They had no chance. The *Malanburi* was picked up and dumped on the reef, rolled and bumped until she brought up on her beam ends against some niggerheads.

Macey and crew were clinging in and about the cabin when he noticed his servant was mis-

Maron House and staff in 1922. The house was originally owned by a German planter named Wahlen



sing. Waldon was pointed out to him scrambling through a broken hatch cover. The servant began crawling along the heaving, sloping deck. A huge wave picked him up and carried him overboard. They watched his poor, brown, lost body tossed and spun in the relentless fury of the foam-flecked flood. Then they saw it no more.

I recalled then how the men back at Maron had accounted for Waldon's death. Nearly 100 men on Maron, with whom I had daily contact, firmly believed Sikis was responsible – not intentionally perhaps, but responsible nevertheless. Why was the shark at Maron and not with his *pikinini* to look after him? Because Waldon had told him the boat was going direct to Rabaul and the shark was so pleased to be going home that he swam happily ahead. When the storm broke he returned to stay with the boat but could not find it. He thought, then, that it had put back to Maron for shelter, so he too returned to Maron.

I remembered, now, that Macey, when he asked me to keep mum about his tobacco venture, said he wasn't even going to tell the crew.

Reg Beasley kept detailed journals and many photographs of his life in New Guinea. These are now in the possession of the Fryer Library of the University of Queensland. His notes included these observations:

Wherever I travelled on the New Guinea mainland and to the islands I found a firm belief in the spirit world. Sorcery is a deeply ingrained part of the people's way of life. They were constantly haunted, harried or helped by dewel, tambaran *and* masalai. *Sorcery in pidgin was called* poisin *and* puripuri *in Motu.*

Death that wasn't from 'natural causes' – old age, battle or breach of the spirit laws – was believed to be the result of sorcery. Then the hunt began, not so much for the sorcerer – who was a necessary and respected institution – but for the person who had procured the sorcery because it was that person who was held to be the killer.

Then there were innumerable spells which cocooned each individual – love spells, spells for hunting, fishing, fighting, planting, building, sickness, revenge. There was a spell for practically every human endeavour and enterprise. All these – spirits, spells and poisin *– were their religion and they had no doubts.*

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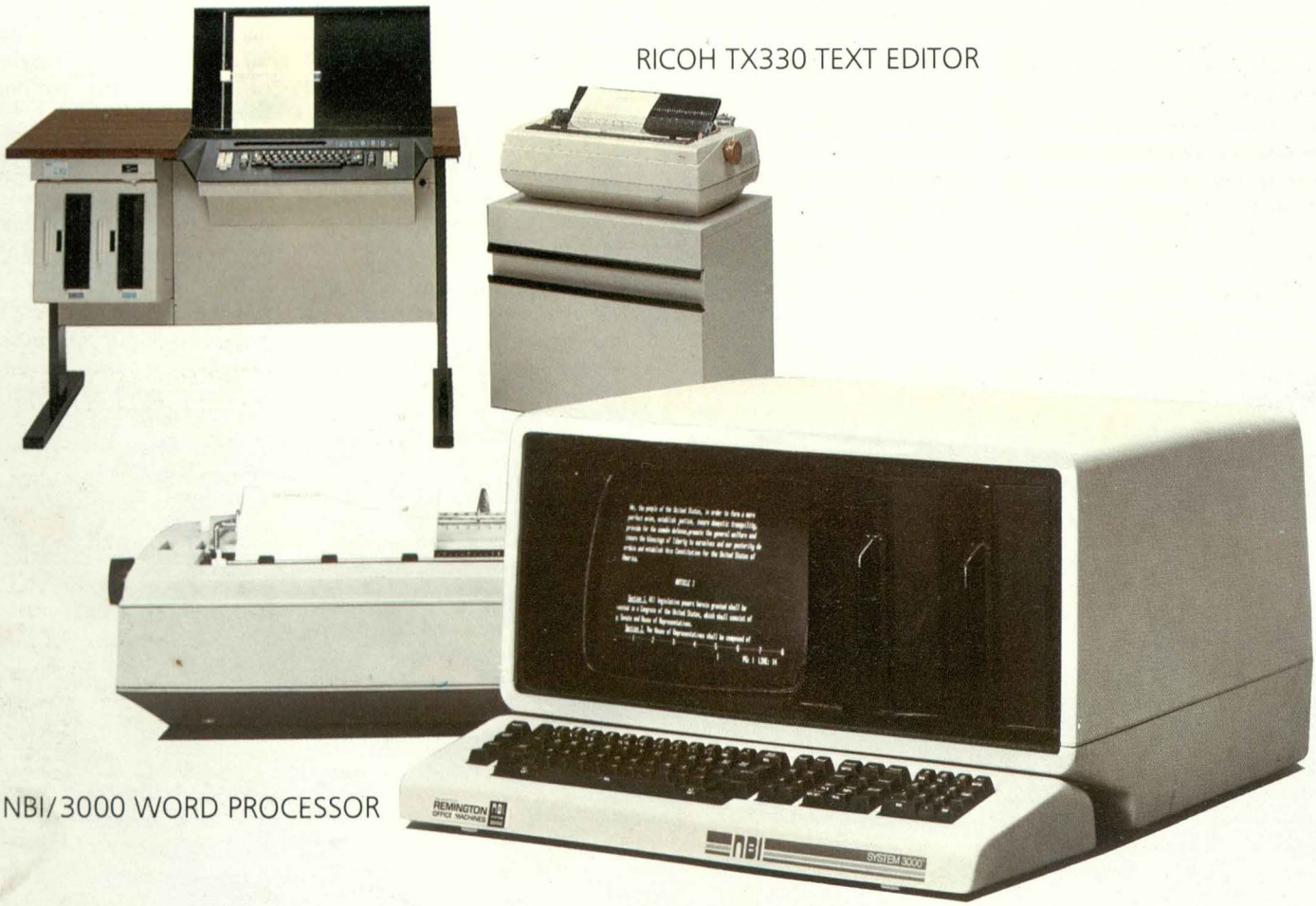

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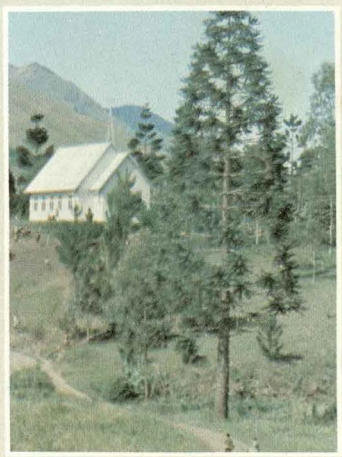
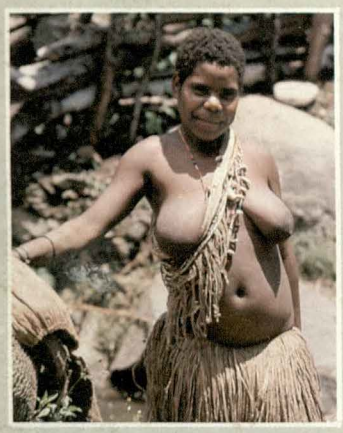
SEVEN DAYS TO KEREMA

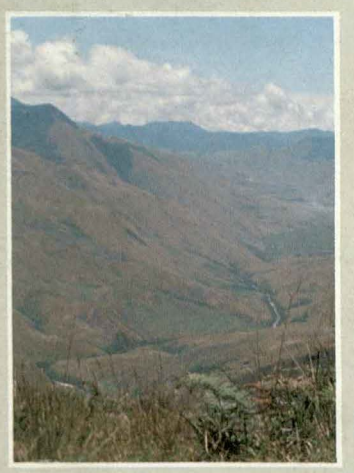
When Wayne Woof decides to visit friends he's just as likely to walk as take a car or plane. Walking is easily the best way to see grassroots Papua New Guinea. Last October Wayne, a volunteer lecturer at the Bulolo Forestry College in Morobe Province, decided to fly to Menyamya and walk over into Gulf Province where fellow New Zealand volunteer Melanie Archer was working at Kamina mission hospital as a nurse-midwife. Wayne recorded his journey on film and in his diary.



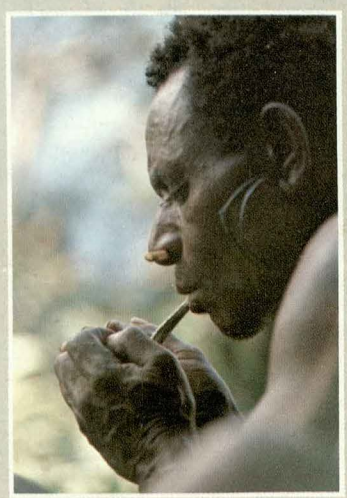
THURSDAY: To Bulolo airport for flight to Menyamya, home country of the diminutive, fabled, fierce Kukukuku people. Half an hour flying due west and we glide down into a wide valley dotted with buildings: government housing, gaol, courthouse. Big welcoming committee. Across the river the Christian mission, school and white church. Meet Grindl (nurse and fellow-volunteer) and catch up with her news. Bernie Crozier, Baptist missionary and ex-gold miner, yarns about the old gold days on the Watut River and promises to find me a guide at his village just up the valley.

Friday: Ten minute flight to Naniwe. Coffee, then a schoolboy, David, agrees to guide me through to Kwoi'imnga. Leave just after 10am with David and cousin setting brisk pace, following the river. Katanga village is deserted apart from one girl. At Kwoi'imnga David finds someone willing to take us to the *haus kiap* (patrol officer's house) and later to Kanabea. The new guide reckons it is two days' walk to Kanabea. Am becoming an object of the intense curiosity of people I meet along the way. Glad to get my pack off after the first day's walk.

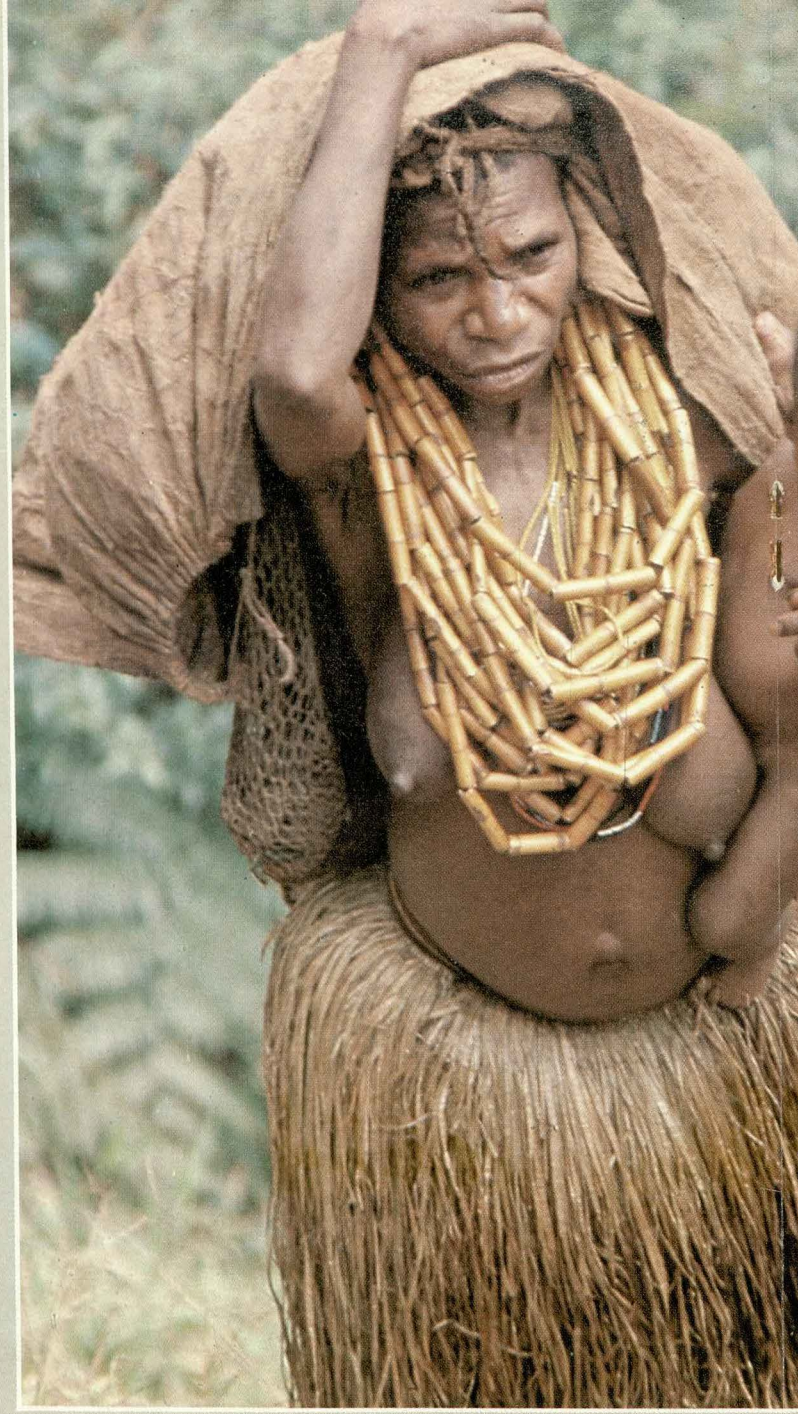




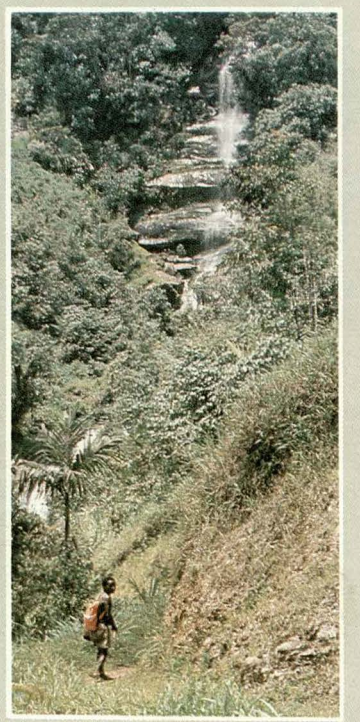
Saturday: A good night's sleep at the *haus kiap*. Leave about 7am. Follow bench track as far as Huwawia, then descend through village gardens on rapidly disappearing track. Steep descent to Tauri River where, seemingly far from anywhere, there is an enormous swing bridge. Steep ascent on other side of Tauri bloody near kills me. Few people around. An old man smoking *brus* (local tobacco) rolled in a leaf and a couple with red-stained mouths from chewing *kawiwi* (wild betel nut). Good drinking water in the creeks. Arrive Wemiwa mid-afternoon. Intrigued villagers present me with two pawpaws. No rest. Play soccer on pitch inclined at about 20 degrees. Fortunately plenty of small boys to chase runaway ball. Spend the night with Sam, a teacher from the Trobriand Islands. He lends me a stove and a lamp so I get a good feed and real coffee.



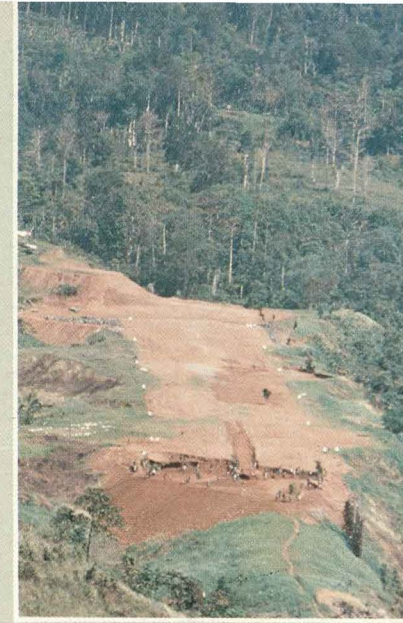
Sunday: Leave at seven, facing a gut-busting climb out of Wemiwa. Lovely day with clear air and marvellous views. Meet with people at the top of the climb. Spectacular waterfalls along the way. European Catholic community welcomes me at Kanabea. Wash, dine and sleep – all sumptuously. Hear Melanie is sick and has been taken to Port Moresby for treatment. Decide to press on to Kamina anyway.

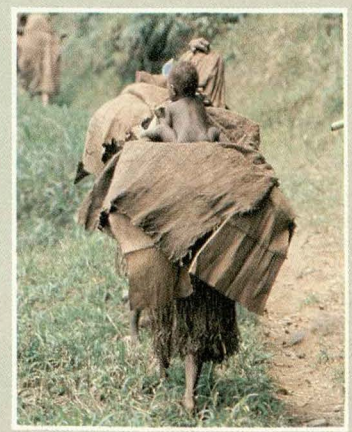


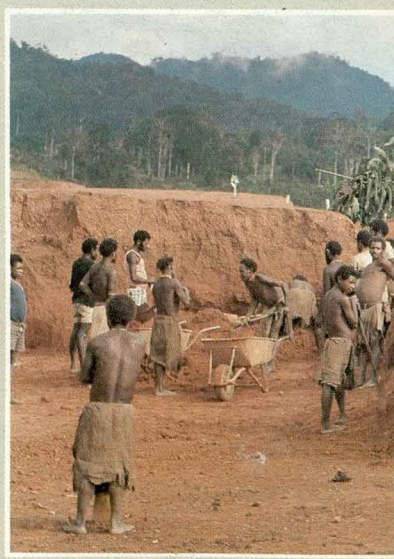
Monday: Leave Kanabea after a good breakfast. Mission mail carrier shows me the way though my Kwoi'imnga guide stays with me. He wants to see Kamina. Comfortable walking. Cross a river. Then the going gets hard as we slog up and down through the gardens of quite a heavily-populated area. The few people we meet seem surprised but still greet us with the local *'Awadi'*. Most are wearing bark-cloth capes. Take a last look back down the valley to Kanabea then head down a long steep path into Kamina. No water on this stretch of the journey. Brother Lyall greets us, feeds me and tells me Melanie's illness is dysentery.



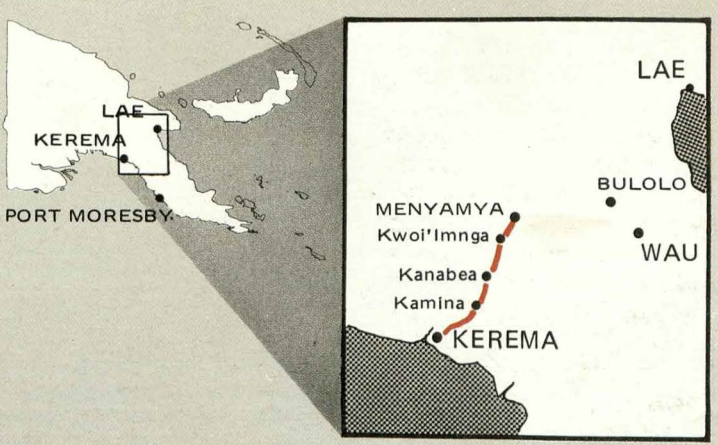
Tuesday: Decide to rest for the day. Inspect airstrip construction. Being lengthened to take Islander aircraft. Most work done by hand. A staggering task. Watch a broken tractor blade being moved. Phillip, a local lad, takes me for a walk through nearby villages. Help Brother Norbert pull the fuel pump off the tractor.

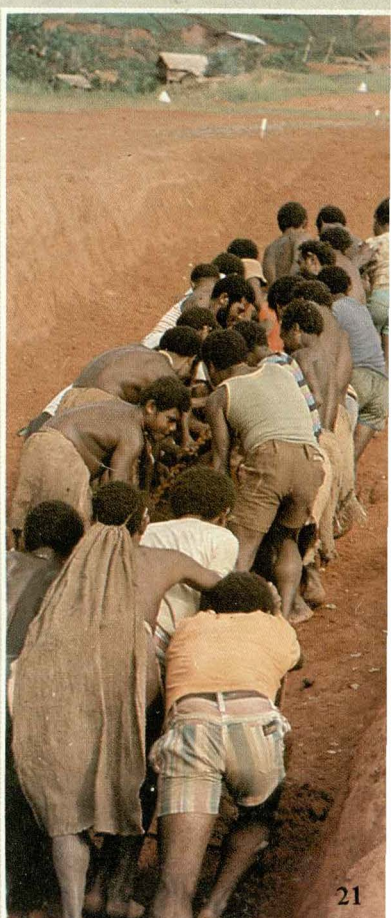




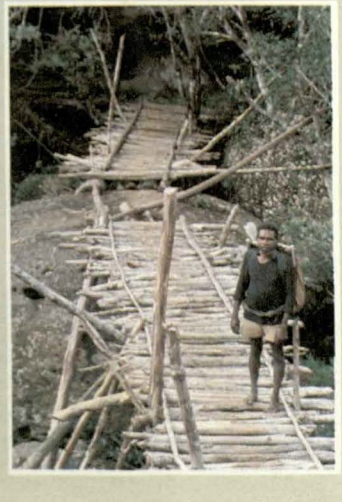


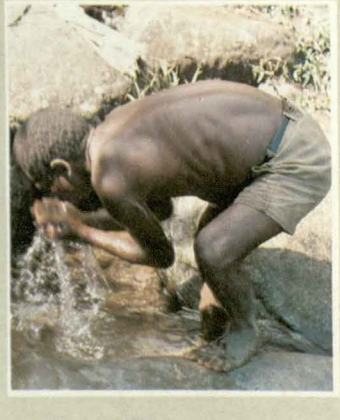
Wednesday: 6.30am departure from Kamina with new guide. After two hours we find villagers making sago in a temporary camp. An old lady is beating bark to make capes. Marvellous wooden bridge on way into Ivandu. Long downhill walk on benched track until 4pm. Starts to get both dark and wet. My guide finds a couple of families living in their garden miles from anywhere. They agree to put us up in a small smoky house. Including us, seven adults and five children. Boiled taro for dinner. Seems this is the main food. Sleep amazingly well.





Thursday: Breakfast – boiled taro. Last look at my home for a night and, at 6.30am, head into no-man's land. Badly-defined track through primary forest. No views. No people. Reach Tittimoa at 5pm and get first sight of sea. Spend night with catechist and family. Dinner – lavish by last night's standards – is coconut milk, *kumu* (local greens) and bananas. Ten minute walk to a stream for a drink.





Note: Wayne took three hours next day, mostly through knee-deep mud, to reach a construction camp at Murua east of Kerema, the provincial capital. There he was able to hitch a lift into Kerema from where he caught a plane to Port Moresby. There he found Melanie making a good recovery but still in hospital. Then it was another plane to Lae, capital of Morobe Province, and yet another to Bulolo. A roundabout way home but not as hard on the feet.

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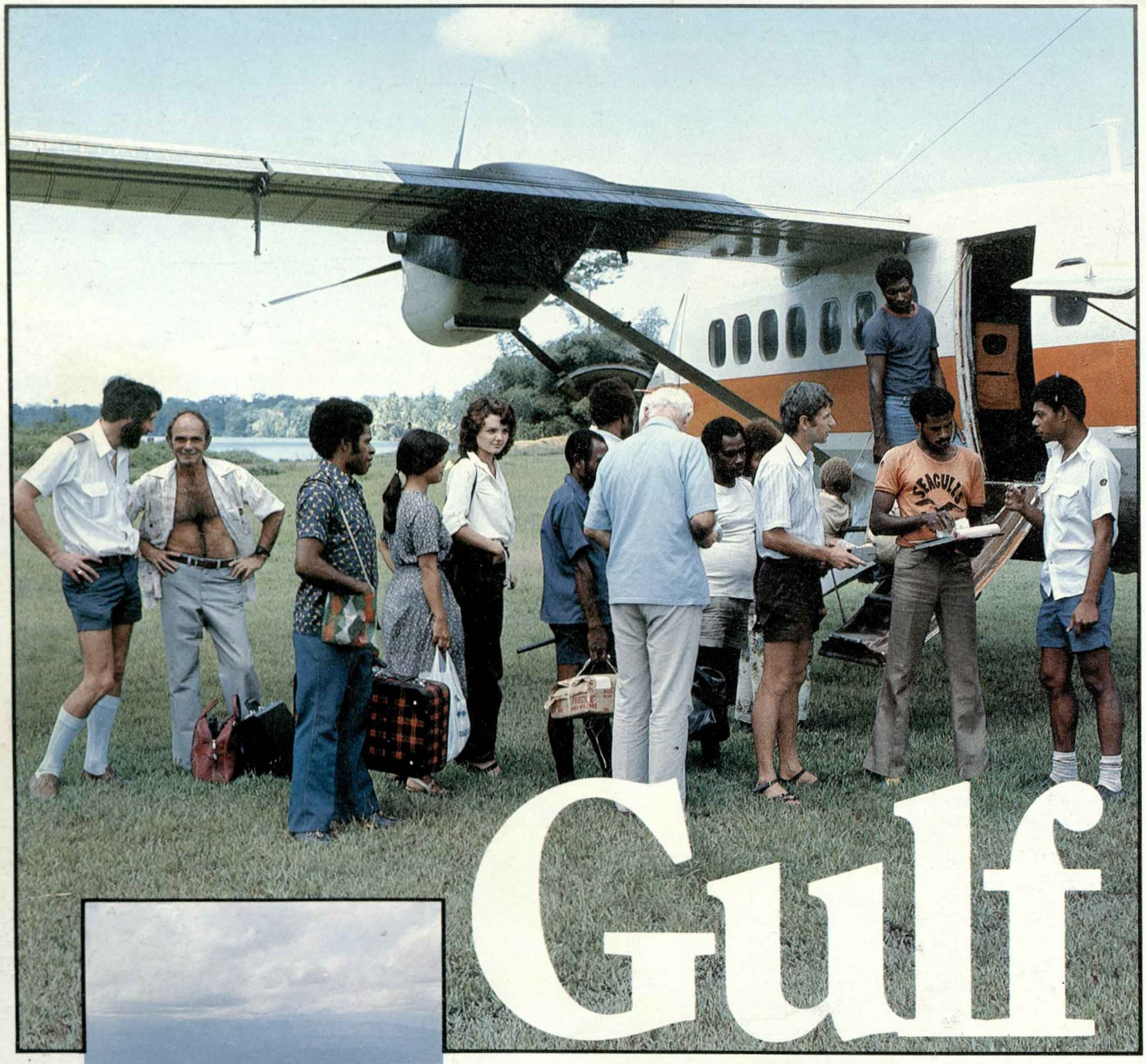

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THE FLY

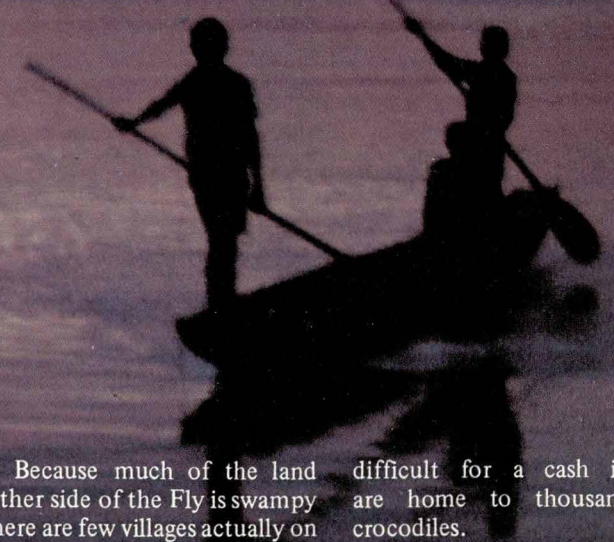
The mighty, majestic, muddy Fly River has had a lonely life in terms of human contact. Meandering more than 110 kilometres through Papua New Guinea's most sparsely-populated province, Western, the Fly has known little of the traffic experienced by its even more famous counterpart, the Sepik River which empties on the north coast of Papua New Guinea. But with the development of the Ok Tedi copper mine in the mountains not far from where the Fly begins, all that is going to change. Brian J. Mennis reports on a trip up the Fly River.

'WHY is this river named Fly,' asked my son. 'I can't see any flies but there are plenty of mosquitoes.' There were mosquitoes, indeed – by the cloud. But, fortunately, we were well protected by our mosquito nets.

There is no good reason for the river to have this name. It certainly was not among the names given to it by the people who have lived along it for centurites. It was dubbed Fly by one Captain Blackwood, commander of *HMS Fly*, the first European vessel known to have charted its mouth. That was in 1842.

There were voracious mosquitoes then, as many later explorers were to discover to their discomfort. The Rev Samuel McFarlane travelled 240 kilometres up the Fly in the *Ellangowan* in 1875. Luigi D'Albertis claimed he penetrated 925 kilometres in 1875 before being forced back by shallow water. Sir William Macgregor, who claimed he travelled upstream 850 kilometres by launch and a further 110 kilometres by whale boat in 1890, disputed D'Albertis' claim.

D'Albertis and Macgregor reported warlike tribesmen on the Fly but there is more than a suspicion that D'Albertis' behaviour, as he collected artifacts and skulls, was a main cause of the hostility.



Because much of the land either side of the Fly is swampy there are few villages actually on the river. They are mainly well back on dry ground on the edges of the swamps. From the river, only occasional temporary 'dry season' shelters for crocodile hunters are to be seen.

Crocodile skins are the main source of income for most Fly River people. The swamps and lakes which make agriculture difficult for a cash income are home to thousands of crocodiles.

In the wet season when the swamps are full the crocodiles are able to hide fairly successfully. But in the 'dry' they are easy prey to the hunter's gun or spear.

Crocodile skins are the main more than 50 centimetres across the belly. This upper limit is imposed to ensure that mature breeding specimens are not endangered. In this way numbers are maintained. Skins from 25 to 50 centimetres give the best return to the hunter. A crocodile with a 50-centimetre belly measure would be at least 2.5 metres long.

The Papua New Guinea Wildlife Division is now encouraging the people of the Fly to start crocodile farms. Advice is available from the wildlife station on Lake Murray which lies to the east of the Fly near the point at which the river becomes the international boundary between Papua New Guinea and the Indonesian province of West Irian.

Wildlife officers are spreading the message that to catch small crocodiles and wait for them to grow, rather than kill them on the spot, will ultimately give a much bigger financial return.

The Fly and the swamps along its banks are also haven for barramundi, a magnificent sporting and table fish. Barramundi are netted at the mouth of the Fly and in the waters around the Boset Christian mission, 200 kilometres due north of the coastal boundary marker between Papua New Guinea and West Irian.

Boset mission is run by French-Canadian Montford fathers who sponsor a fisheries co-operative. They spent Kina 10,000 on freezers and other equipment which has now been repaid by co-operative members.

Although barramundi are the prime source of the Boset co-operative income, deer, which have crossed from West Irian, are now becoming plentiful.

The deer were originally introduced to West Irian by the colonial Dutch at Merauke. They have multiplied and, being good swimmers, have found the rivers of the great flatlands around Merauke and in Western Province no barrier. In a far-sighted move, the people of Boset deliberately allowed the deer to continue their migration eastward so that the popula-

tion would build up in their own area. It is believed now there may be more than 100,000 deer in the Western Province flatlands.

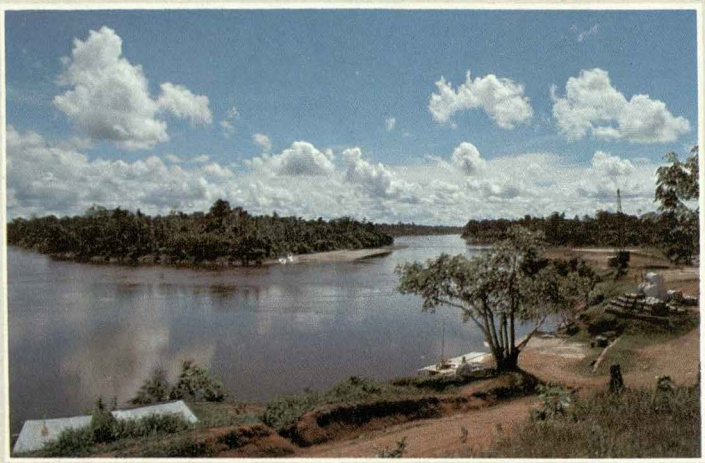
Fish and meat catches at Boset are sold either to Daru on the coast, just south of the Fly estuary, or to the mining camps which have been established way upstream at Kiunga and Tabubil. The Boset co-operative can expect a growing demand for both as mining operations intensify.

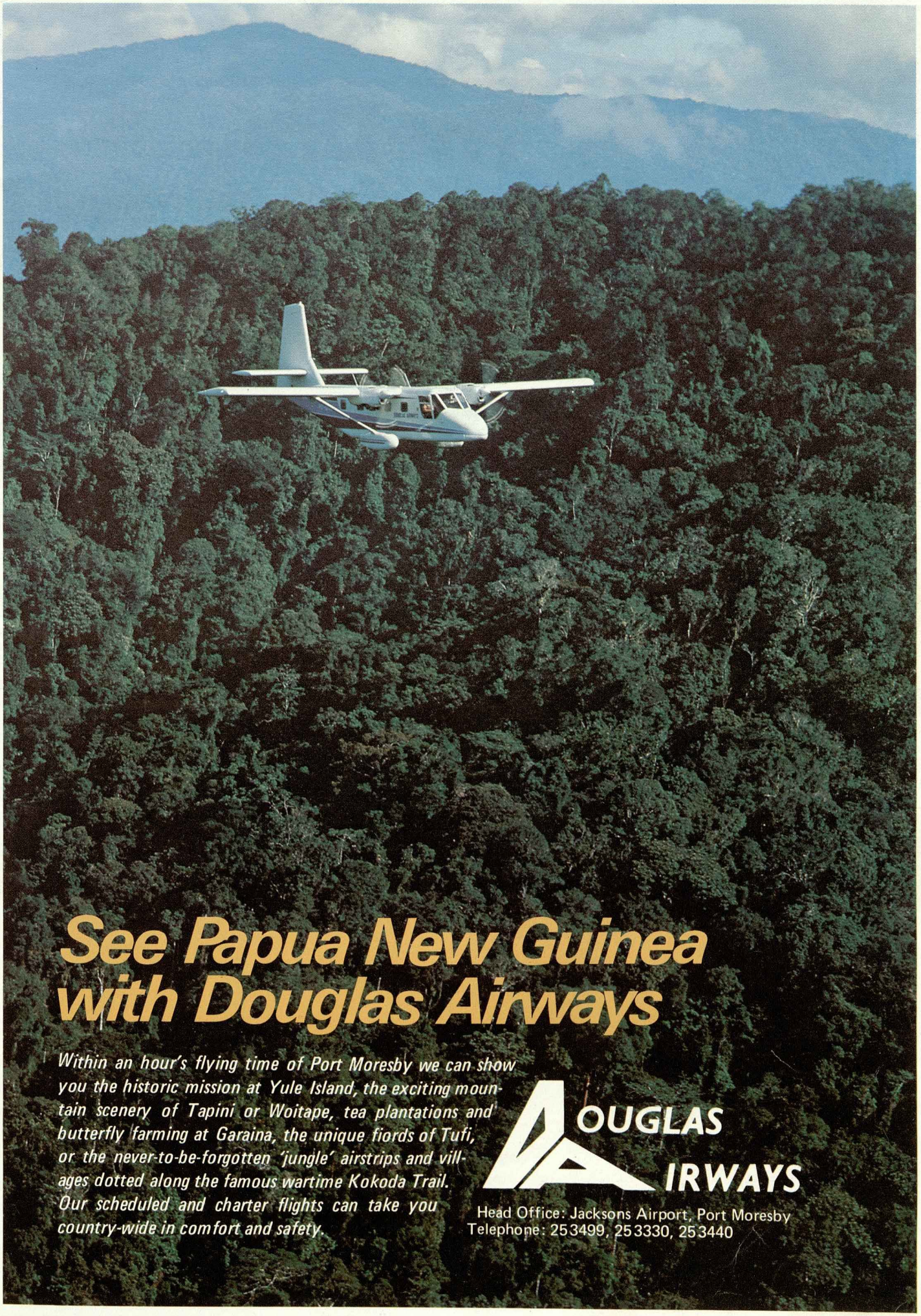
Though the river is usually reliable for navigation to Kiunga, an extra dry 'dry season' can bring water traffic to a halt. Some years back, exploration was brought almost to a standstill for the better part of a year because levels fell so far as to make the waterway un-navigable. Kiunga, 800 kilometres by river to the sea and 150 air kilometres from Tabubil near the mountain of copper with a gold topping, is the main transhipment point for all cargo destined for the Ok Tedi mine site.

As the ground starts to rise toward the Victor Emmanuel Range and, further west, the Star Mountains, rubber trees are being planted. One village not far from Kiunga – Timindemasuk – has several hectares under rubber which should add to local income.

Lake Murray is a fascinating diversion from the main Fly waterway. It is linked to the Fly by two other hefty rivers, the Strickland and the Herbert. Lake Murray is about 500 square kilometres in area and has an average depth of six metres. But this figure can be rather misleading because of seasonal changes. In the wet it can be very much deeper. In the dry it can be quite shallow. In 1972 a vessel that ran aground had to wait six months to be refloated. In the meantime firebreaks had to be burnt to protect it from danger of grass fires. In 1956, they say, there was such a dry season that Lake Murray nearly wasn't.

Life is going to get busier as infrastructural work at Ok Tedi goes ahead. Then when the mine is in production it will be the highway for the ore to be barged to the sea. It will become a major economic artery in a nation well-endowed with mineral riches. But the Fly River runs broad and it would take more copper barges than the world can muster to cause a real traffic jam. Man and his technology will continue to be dwarfed by the size and power of this giant of nature.





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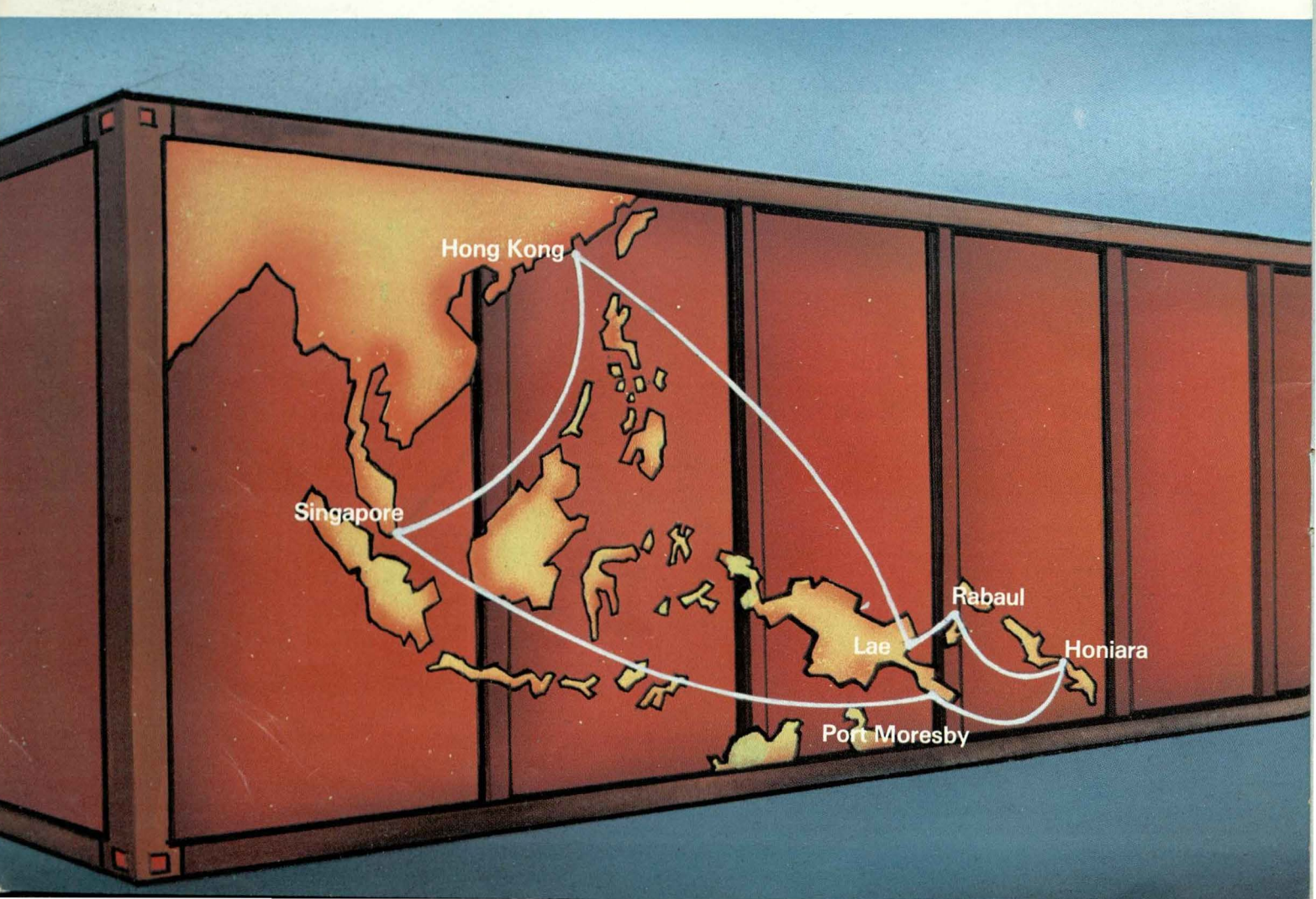

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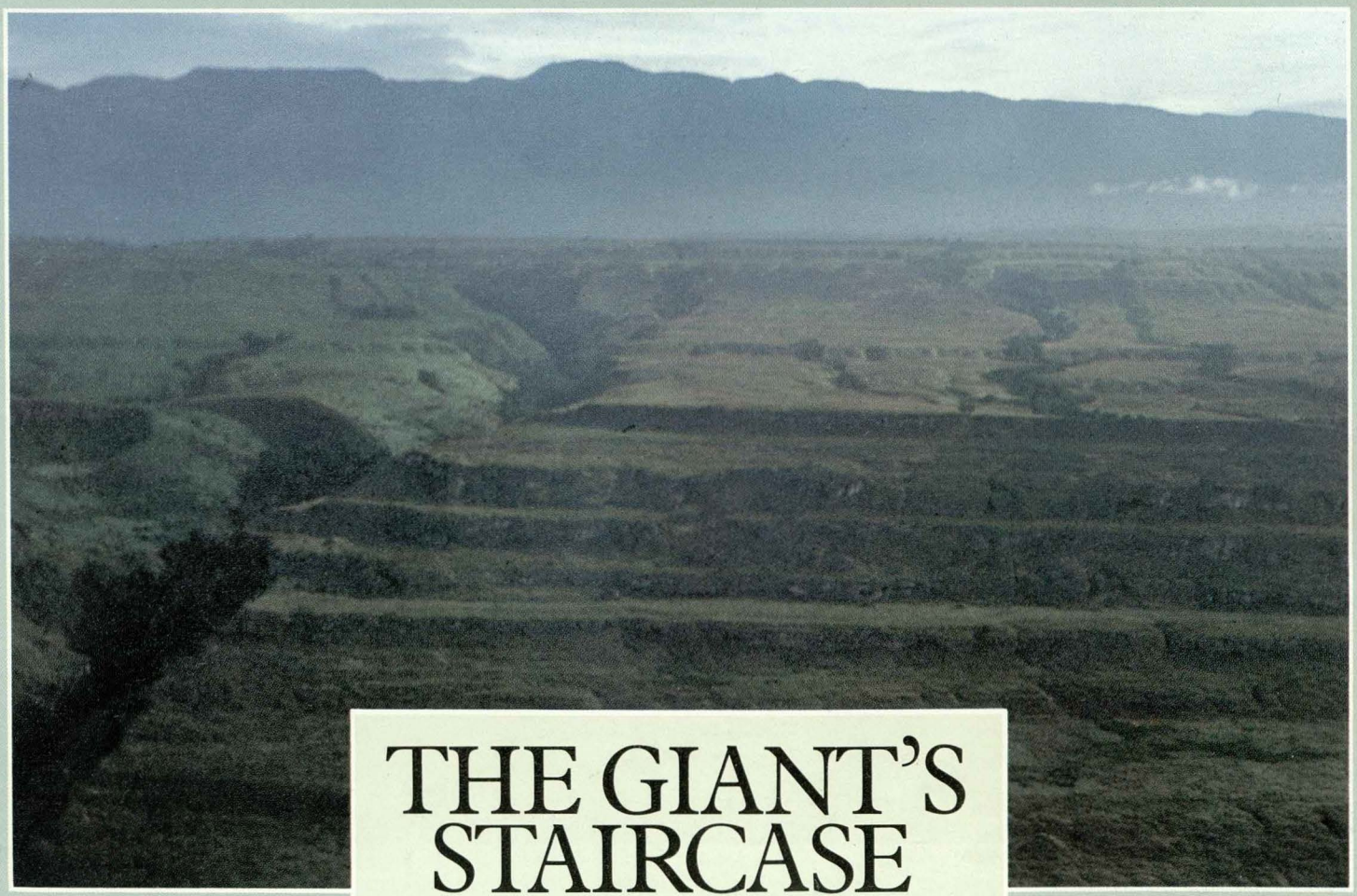


THE GIANT'S STAIRCASE

By Hugh Davies

Step by giant step, from seashore way up into the hills, the story of Earth, for the past quarter-million years at least, is laid bare. Sialum, well off the beaten track on the north coast of Morobe Province's Huon Peninsula, is a geologist's paradise, the home of spirits and a great place to get away from it all.

LIKE a green-carpeted Brobdingnagian staircase, the coral terraces of Sialum rise tier upon tier from the white beaches and deep blue waters of the Vitiaz Strait. Tall grass ripples in the morning breeze. The sun highlights stony escarpments that delimit each terrace while wisps of mist rise from the bluish mountain peaks beyond.

A steep river gorge slices down through the terraces. In its cliffs and gravel banks are recorded a hundred-thousand years of history. John Chappell, a young New Zealander was fascinated by the terraces and decided to unravel the story behind them. He began his task in 1966. A decade later he had some of the answers. They are recorded in a thesis now acclaimed a classic study with important implications for the understanding of the ice ages and for the behaviour under stress of the Earth's crust and mantle.

Chappell is now a professional fellow at the Australian National University in Canberra. I was fortunate to catch him on one of his visits to Papua New Guinea and to be introduced to the terraces in his company, an experience I will always treasure.

Chappell is a lean, affable outdoorsman, full of energy. He's happiest when standing on an outcrop – the terraces and the Vitiaz Strait as his backdrop – discoursing knowledgeably on such varied topics as reef structure and ecology, the uranium and thorium content of sea shells, the relationship between perturbations of the Earth's axis and the ice ages, and mathematical calculations of the viscosity of the Earth's mantle.

Briefly, what Chappell determined was that each terrace represents a former coral reef, complete with reef-front debris and back-reef lagoonal muds. The way he proved this was to first map the terraces, by conventional means, and then to map the present-day living reefs immediately offshore from Sialum. For this second task he used local canoes, a small echo-sounder and skindiving and bottom-sampling equipment.

He found parallels in the structure of the old raised reefs and today's living reefs. There was a match in specific types of algae and coral which typically occur as certain levels in a reef. The structure and distribution of reef, reef debris and lagoonal sediments are comparable.

Chappell's next objective was to determine the age of each terrace. Initial work showed that many of the reefs were too old to be dated by the conventional carbon-14 method because it has a limit of 50,000 years BP (before present). This problem was resolved by a colleague, Herb Veeh, who established a laboratory to measure accurately minute quantities of the isotopes of uranium and thorium, metals which are present in trace amounts in the shells of sea animals. The proportion of

the different isotopes varies according to the age of the shelly material. Ages as great as 250,000 years can be measured this way.

An exciting picture emerged of an almost perfect progression of ages from youngest, near the present seashore (about 6000 years old), to the oldest, in the highest terraces more than 600 metres above sea level and most remote from the present seashore (more than 250,000 years old).

From these measurements Chappell could calculate that, for at least the last several hundred-thousand years, the Sialum area has been rising steadily at a rate of two to three millimetres a year, about 25 centimetres every 100 years.

He deduced that each coral terrace had formed in an interval between ice ages. The melting of polar ice caps adds water to the oceans and produces a rise in sea level. The rising sea level kept pace with – or outpaced – the rising landmass, making conditions ideal for reef growth. As the next ice age developed the sea level dropped and coral growth ceased, only to resume again in the next interglacial period.

This hypothesis was tested and confirmed by matching the ages of the terraces with the established time-table of glacial and interglacial events for the past 250,000 years. The fit was good. In fact, Chappell's record of sea level changes gave a more detailed record of that part of the Earth's glacial history than was available from the classic glaciated areas of the northern hemisphere.

This being the case, could the Sialum record be used to shed more light on the cause of the ice ages? This question has been for many years a matter of heated debate amongst earth scientists. The answer is a tentative 'Yes'.

More than 40 years ago a Yugoslav mathematician, Milutin Milankovitch, proposed that the ice ages were caused by variations in the Earth's orbit and in the inclination of the Earth's axis of rotation. Greater distance from the sun or a certain angle of tilt of the axis could lead to reduced solar heating of the Earth and could trigger an ice age.

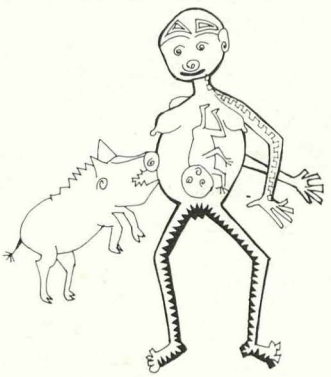
Variations in the Earth's orbit and axial inclination are systematic and can be calculated for the past 250,000 years. Chappell matched these against the Sialum record and found good fit – times of least solar heat coincide with times of falling sea level (glacial periods), and times of greatest solar heat coincide with times of rising sea level and reef growth (interglacial periods). Clearly his evidence supports the Milankovitch theory. Carrying the study one step further, Chappell calculated solar heating values for the next 5000 years and concluded that through this period the Earth is unlikely to suffer another ice age, a comforting conclusion for those concerned with such matters as world food supply.

And why does the Sialum area continue to rise? The answer almost certainly lies in the squeezing and buckling of the Earth's crust, as the Australian tectonic plate pushes northeastward against the Pacific plate across a boundary in the Vitiaz Strait. In the same way the Himalayas have been generated as the Indian sub-continent pushes northward into Asia. An important difference is that in the Sialum area the dimensions of the uplifted area and the style and rate of uplift can be established with reasonable accuracy, and from these data can be derived useful information about the viscosity of the Earth's mantle, an exercise which, as you may well have guessed, Dr Chappell is undertaking – *Hugh Davies was, until recently, a geologist with the Papua New Guinea Government.*

THE PASSAGE OF SAI

In the 1960s a Papua New Guinean, Lanson Giemo Nidung of the Dedua area (south and inland from Sialum) gave his people's explanation of the terraces. Another Dedua storyteller describes how the terraces became the focal point of cargo cult activity just after the Pacific War.

ONCE upon a time there was a man and his wife at Sialum. The man was a pig and his wife was a human being. Always when his wife bore a child he ate it up. When she bore



a really handsome child, a boy, she made up her mind to look after this child.

She ran away from her husband. One morning they left their place and they went inland until, on the way, they met an old man. The woman asked him if he would help them. The old man asked her about herself and she told him all. The old man promised to help her.

When they passed on the father traced them until he came to the place where the old man was. Then the old man stood up as a stone. While the pig passed underneath, the stone fell down and crushed that pig. The pig, named Masumarae, then turned into a very large stone and may be seen to this day at Tobo which is about 20 miles (32 kilometres) from Sattelberg.

The woman and the child came to a place called Burun about 40 miles (64 kilometres) inland, past Sattelberg. So they found themselves a home and the woman looked after her child until it grew up to become a youth of about 18 to 20 years old.

During this time the boy was very poor. He spent his time hunting and killing birds and smoking them. As the time of his marriage approached his old mother told him to make a garden and when the garden crops were ready they had a feast and the boy was married.

Soon the boy and his wife had a son. After this, when he would spear and kill a pig he would never give meat to his old mother. One day his mother was very sad and made up her mind to change herself into a pig.

She left the house at about three o'clock in the morning and went to the garden where the boy had planted his taro. She broke the fence and went into the garden and ate up the taro.

When morning came the boy went to the garden and all the taros were ruined by the pig. He came back to the village and reported this to his relations who told him to go back to the garden and watch and find out what had caused the pig to damage his crop.

Next morning at about half-past-three he went to and walked in his garden until his mother in the form of a pig came to the garden and jumped the fence. She started to eat up

the taro. He speared her. He had killed his mother.

The son heard a cry like a pig: '. . . Weee!' But his wife heard the pig say: 'You have killed me!' His wife told him what she had heard but he said: 'It sounded like a pig to me.' But she insisted: 'No, I heard a

voice like "You have killed me".'

They went home but they did not find their mother in the house. This made the boy sad and he went back to the garden but he could not find or see a trace of the pig.

The pig had gone into the bush and turned into a very large tree. Some days later they went and repaired the fence that

had been destroyed by his mother. It was raining a bit so his wife and child went to the shelter of a big tree where they could sit and protect themselves from the rain.

The mother fell half asleep when down from the tree vines came branches, like beads, and coiled themselves round the child's neck. And when the mother suddenly woke up she saw something slipping back into the tree. Part remained round the child's neck. The mother quickly went to the husband and told him about the beads. They made a careful investigation and went back to the village and told all the people about them.

They showed them the beads and at once the news spread from village to village. Soon neighbours from other villages came to Burun and everyone started to cut down the tree to find out what is at its branch.

They worked at cutting up the tree. When night came they all went home. The part of the tree that they chopped off during the night became native money. When next morning they returned they collected it. But the tree had grown back the branches which they had cut off the evening before.

As often as they would cut off the branches they would turn into native money; and the limbs in turn would be replaced in the night and the tree would grow no smaller.

One day they cut down the tree but it did not fall to the ground. It rose into the air and flew like a bird or an aeroplane. This tree was named Sai and when it started to fly all the people cried out: 'Sai is going now.' So, on the hillsides everywhere, people made platforms and made themselves special hooks to hook the tree down.

Whichever way they tried to get it down they were not able, but they did break off branches which, as they fell down, became native money.

But Sai kept on going in the direction of Sialum, on the coast between Finschhafen and Sio, from where she had originally come. It is not known exactly where she ended up but the general area is known as *ples masalai* (spirit places). In this area there are a number of reefs set by a cliff. Everywhere that Sai passed you can see a saddle in the hills where Sai bumped a hollow in the ridge of the hills.

Each time the men standing on their platforms with their hooks pulled down Sai it bumped against the ground and bounced back into the air.

After the war, in 1946–47, the whole area from Madang along the Rai coast through Sio, Finschhafen to Lae and up the Markham and down the Ramu Rivers was troubled by cargo cult activities. The people had seen vast quantities of supplies and multitudes of Australian, American and Japanese soldiers come and go. This had left the local people in a state of confusion. The story that follows is told of a small area within this larger area now known as the Pindiu Local Government area and involves two groups of people, the Hube and the Dedua. It is told by a Dedua man who was a small boy at the time. About 21,000 people were affected by this movement.

Several of the Hube people first came to our village and they tried to get us to join them. They came with noise and persuasive people believed and trusted them. It really seemed that something wonderful was happening and there was an air of great expectation. These people would come every afternoon. Their faces were pale, their eyes were burning like fire, their bodies were shaking and they spoke a very peculiar language.

It appeared that those people who were taking part in the cult immediately were able to understand this language and could converse with each other in it. Whereas those of us who were not taking part in the cult could not understand it at all.

These cultists would fasten a flag to a pole and form a single file and weave through the village, bodies shaking, eyes shining, shouting. All this nonsense I myself have only seen once. These people would then go out and clean up the cemetries and go around every night and talk to the dead bodies. Though these people attempted to force us to follow them in these things, we would not.

This phase was terminated by the visit of a joint government and mission patrol. This aroused much anger amongst the cult who wanted to attack the patrol. But no one did attack the patrol and after this the cult was over and finished.

The cultists said that the Sai was going to get up from the *masalai* place on the reefs near Sialum Island and travel back along the 'Passage of Sai' distributing not native bead money this time but cargo. Some cultists went down to Sialum to watch for Sai. Others set up the platforms by the saddles in the hills and equipped themselves with hooks to be ready to hook down Sai or at least to hook off the cargo. To this extent they follow the legend. In addition to this it was believed that Sai had control of submarines and war ships and that she would send cargo for the people in time.

Others yet concentrated on the graveyards. These were cleaned up. In some instances gifts of beads, food and pig meat were put out in the graveyards.

Besides the graveyards they dug trenches in which people mounted sentries to watch for and report anything that might happen there. It was believed that the cemeteries were gateways which would open up and the dead ancestors would distribute the cargo. Graveyards and the place where Sai was supposed to have gone near Sialum and the big stone where the pig father Masumarae had been killed and turned into this big stone – these places are *masalai* places. In these places, by the *masalai* who are dead ancestors, the cargo is made.

There was a strong feeling that the cargo was made by the *masalai* and by God and that it did not belong to the Europeans. It was hoped that the cargo would include guns with which they would be able to fight the Europeans who they felt scorned them.

There would also be rice, meat, tobacco, money, boots, clothing and many things. It was not exactly clear where the *masalai* and God made the cargo and how it would be delivered. People had many different ideas about this.

These false ideas were the results of the confusion caused in people's minds by the war and then the anti-climax of it finishing and all the soldiers going away and no more ships and aeroplanes being around so that it seemed as though it had all been but a dream.

As told to R.L. Pulsford, lecturer in sociology at the Papuan Medical College and published in the Journal of the Papua and New Guinea Society *Vol. 1, No. 1, Summer 1966–67. Illustrations by Michael Ayula, Henao Gau, John Samo and Joe Augustine, students at the National Art School of PNG.*

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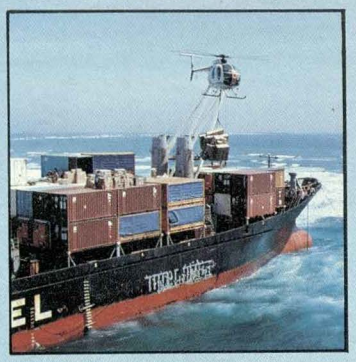

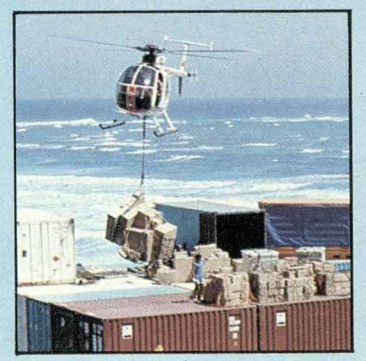

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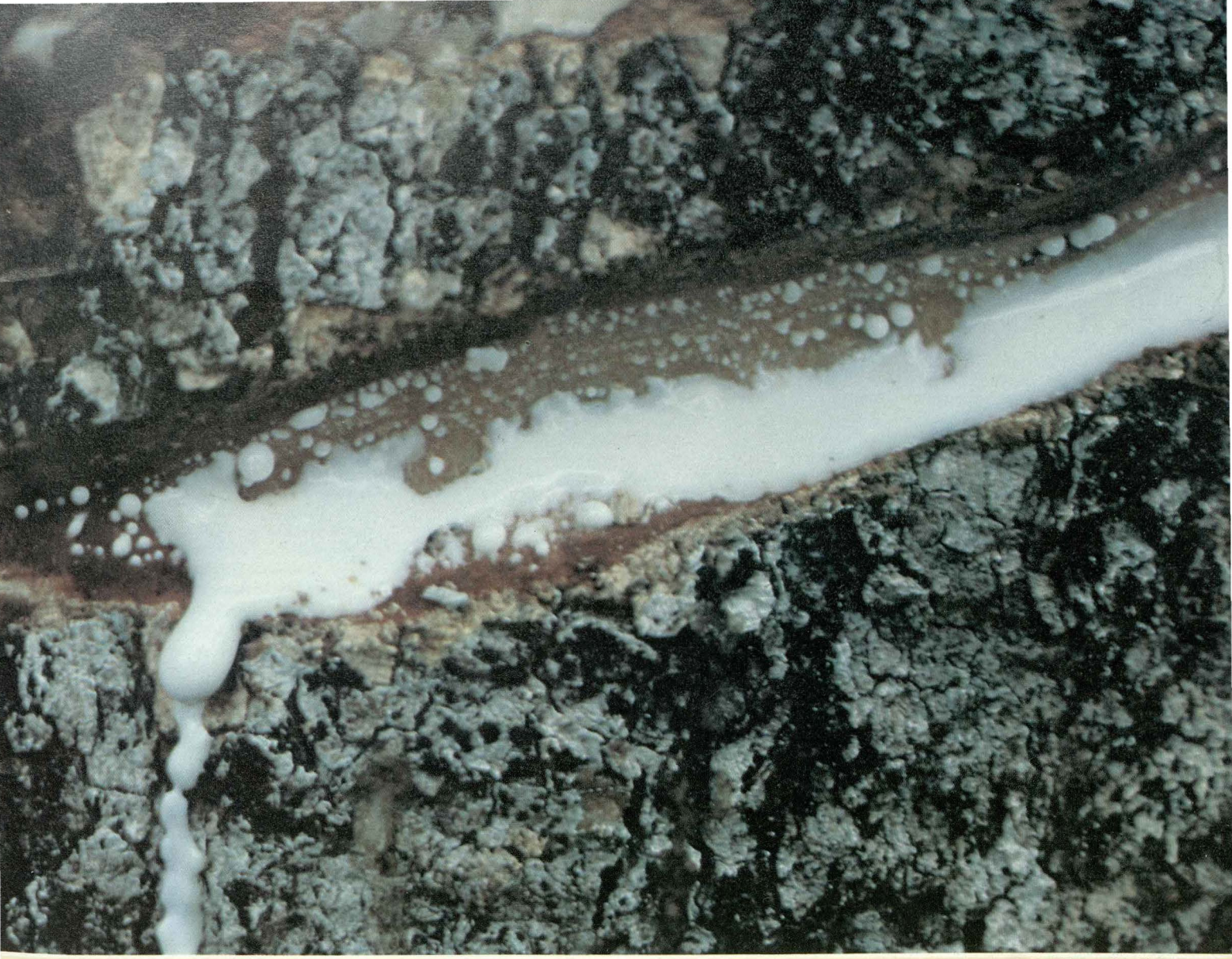
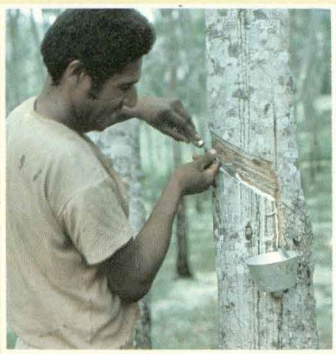


Tony Gardiner

rubber

By Chris Arnold



Above: *tapping requires skill and sharp tools;* **top:** *latex seeps from the trunk of a rubber tree*

RUBBER has been grown and processed in Papua New Guinea for more than half a century. However, the industry has not experienced the dramatic growth or undergone the innovative modernisation which has occurred in most other natural rubber-producing areas around the world.

To a large degree, natural rubber producers in PNG have developed in geographical and technological isolation. The total industry comprises no more than a score of estates in the principal growing areas – Central, Northern, Gulf and New Ireland Provinces – with the odd estate in other areas.

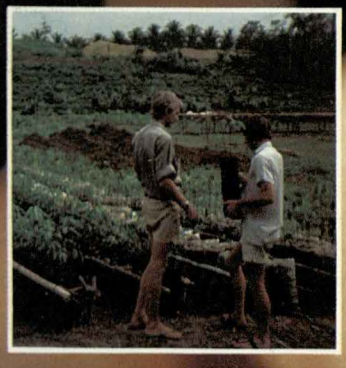
Smallholder rubber is a recent development and its full impact is not yet discernible on the industry as many plantings have yet to reach maturity.

Papua New Guinea in the past few years has experienced a considerable decline in estate producer numbers and actual area in tapping but in the smallholder sector there has been dramatic growth. Numbers of growers have risen from zero to thousands in eight provinces in less than two decades.

For a long time the consensus on rubber was that it was, to say the least, an extremely doubtful proposition. This was due mainly to a subconscious bias against the crop because of a lengthy period of industry stagnation combined with the introduction of widely-publicised 'wonder' crops such as oil palm. Recently, however, a promotional programme has led to wide acceptance of rubber as probably the best available permanent tree crop enterprise for the people of Papua New Guinea, particularly those in the more remote and less-developed areas. What's the reason for this assertion?

Rubber is unique in that the methods and systems of harvest-

Tony Gardiner



Smoked sheets of latex hang on bearers in a smallholder's smokehouse until cured; **clockwise from left:** *plant production nurseries are being developed in many parts of PNG; hand-pressing latex before mangling; smallholders roll their own sheets with hand-operated mangles, simultaneously impressing their own symbol on the latex; estate 'tunnel' smokehouse with rail trolleys, each capable of carrying 500 kg of sheet rubber*

ing (tapping and collection) are infinite. The system for exploitation for a certain village, scheme or group of people can be chosen and designed to suit precisely the social and customary pattern of life of those people. This is in striking contrast to virtually every other comparable crop which requires inflexible systems of harvesting which frequently compete with a community pattern of life rather than complement it. Rubber also grows in a wide variety of soil types, climatic regions and altitudes, and is more tolerant of indifferent management than many other crops.

World market and future prices studies undertaken recently by a number of international agencies, including the World Bank, all agree that the future is bright for rubber – at least as good as any other tree crop commodity grown in PNG and better than most. Natural rubber's share of the world elastomers market is also likely to increase significantly from the present 32 per cent.

In 1978, following a period of intensive study and evaluation, an ambitious and far-reaching plan for PNG's rubber industry was announced. The plan involved updating

plant production, planting, maintenance and processing techniques in concert with an expansion programme. Plant nurseries already were employing the latest techniques in bud-grafting of new higher-yielding clones. Maintenance now incorporates treatment to induce a quicker and better canopy development to shorten the period of immaturity. The target was to make new area plantings, wherever possible, large enough to support a modern processing factory to produce 'technically specified rubber' (TSR).

Government policy embodied the concept of nucleus estates combined with adjacent or surrounding smallholder resettlement schemes.

The 'nucleus estate' concept is not new to Papua New Guinea – the Hoskins palm oil scheme in New Britain Province dates back over 10 years – but it is new to the rubber industry.

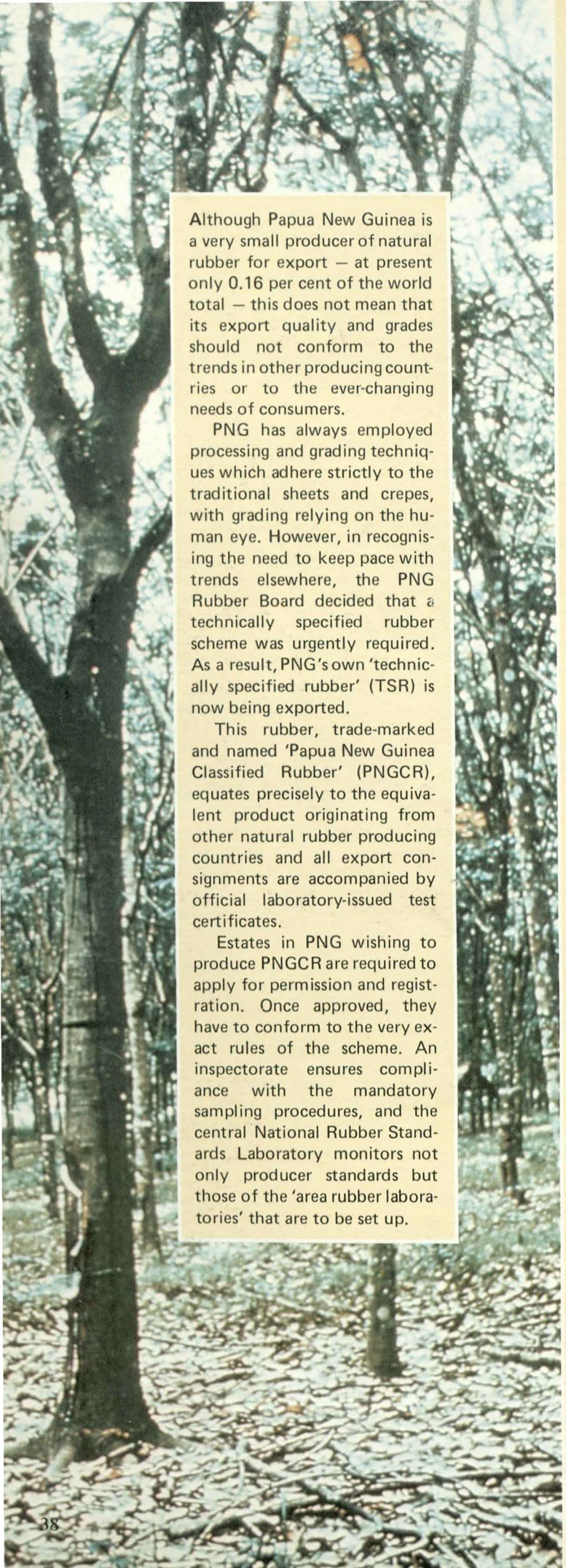
Establishment of nucleus estates will hasten development and simultaneously bring about an injection of new techniques and modern management. Above all, it will act as a catalyst to the industry in neighbouring areas and further afield.

The first project to be designed to adopt the nucleus estate integrated development concept is at Cape Rodney in Central Province, 150 km as the crow flies southeast of Port Moresby.

This resettlement scheme, established about two decades ago, was constantly plagued by resource constraints and inadequate management. However, the new plans approved by the government in 1979, and implemented last year, have already brought about a dramatic improvement in standards of husbandry, production, services and management.

Later this year the country's second factory producing technically specified rubber will be

Tony Gardiner



Although Papua New Guinea is a very small producer of natural rubber for export – at present only 0.16 per cent of the world total – this does not mean that its export quality and grades should not conform to the trends in other producing countries or to the ever-changing needs of consumers.

PNG has always employed processing and grading techniques which adhere strictly to the traditional sheets and crepes, with grading relying on the human eye. However, in recognising the need to keep pace with trends elsewhere, the PNG Rubber Board decided that a technically specified rubber scheme was urgently required. As a result, PNG's own 'technically specified rubber' (TSR) is now being exported.

This rubber, trade-marked and named 'Papua New Guinea Classified Rubber' (PNGCR), equates precisely to the equivalent product originating from other natural rubber producing countries and all export consignments are accompanied by official laboratory-issued test certificates.

Estates in PNG wishing to produce PNGCR are required to apply for permission and registration. Once approved, they have to conform to the very exact rules of the scheme. An inspectorate ensures compliance with the mandatory sampling procedures, and the central National Rubber Standards Laboratory monitors not only producer standards but those of the 'area rubber laboratories' that are to be set up.

opened there, processing raw rubber from smallholders, many of whom are now becoming so proficient and successful that they are matching the performance of their kinsmen involved in oil palm projects.

The Cape Rodney scheme ultimately will incorporate about 800 smallholdings adjacent to a modern, largescale estate growing and processing both rubber and cocoa. The estate will provide for the smallholders services in marketing and plant supply and give advice on general farm methods.

The plans for the massive advancement of the producer industry cannot, however be realised unless there is adequate support structure to co-ordinate all aspects of the industry – both estate and smallholder sectors. The Department of Primary Industry has a specialist unit – the Rubber Industry Section – which has the task of co-ordinating most facets of industry development, emphasising the smallholder sector, in co-operation with the PNG Rubber Board and various provincial governments.

Planning foresees growth in the smallholder sector from the current 4400 growers to more than 11,000, from about 5000 hectares to about 23,000; and production from 700 tonnes to 4,000. All this in about 10-15 years. And, when all planted areas are fully producing, production may be expected to treble, bringing to the small farmers an income of about Kina 8 million (today's values) – a dramatic 'leap forward' of about 3000 per cent. These estimates do not include the estate sector. Total industry growth in export terms could well be five times greater.

Such an increase will also include production from estate areas which had previously been retired from tapping due to low tree productivity and rising extraction costs. These areas are beginning to come back into production with the use of the stimulant Ethephon which is likely to be used widely in the industry in years to come.

Growth in any primary producing industry is naturally linked directly to its ability to maintain high quality. The rubber industry has experienced problems in this area. Consumer complaints in Australia in 1976 and early 1977 led to the department mobilising an export inspection unit which swooped on shippers' stores, beginning in June 1977. Since that time, only inspected and officially certified rubber has been permitted to leave PNG. As a result there has been a dramatic improvement in consumer response.

However, the emphasis on a much greater improvement in quality standards must rest with the producers themselves. It has not always been easy to persuade some producers that they must move with the times. Estate producers have, generally, read the writing on the wall. But some have not, and, coupled with an extremely variable quality of rubber of smallholder origin, they often face marketing problems because of inspection rejections.

The policy of decentralisation resulted in considerable confusion and this difficult transitionary state prevails even today and may be expected to persist longer in some provinces than in others. Provincial governments have, by and large, thrown their weight behind national government policies. Development in the more remote and less-developed areas will be firmly in the hands of the provincial authorities. The onus is clearly upon them. But at all times the national government's specialist resources are on hand to assist and advise when required. – *Chris Arnold is head of the Rubber Industry Section of the PNG Department of Primary Industry.*

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Our weather lends itself to plenty of swimming, be it in our sparkling swimming pools or along some 'almost' deserted sandy beach.

Maybe too, if you are a businessman you should consider our well appointed function rooms and facilities for that conference or special presentation.

And during your stay you'll be pampered with traditional Melanesian friendliness and service. So let good things start to happen to you at Davara.

The Islander Hotel
P.O. Box 1981,
BOROKO
Tel: 25 5955
Telex: NE22288 'Davara'

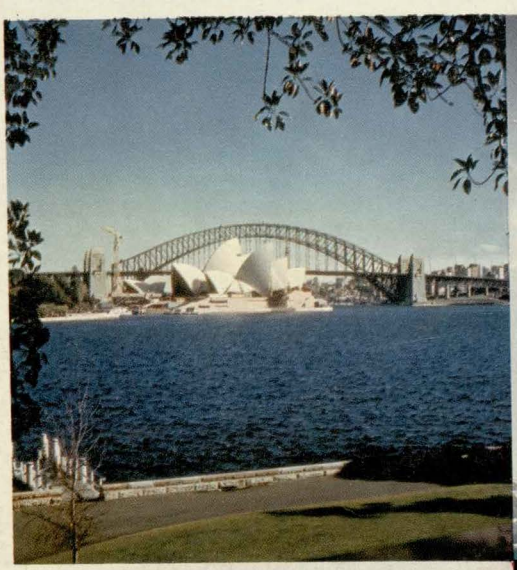
Davara Hotel,
P.O. Box 799,
PORT MORESBY.
Tel: 21 2100
Telex: NE22288 'Davara'

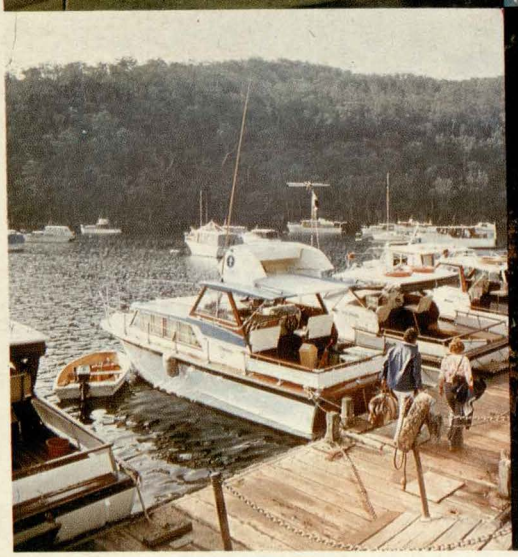
Davara Kieta Hotel
P.O. Box 241,
KIETA.
Tel: 95 6175
Telex: NE95852 'Davara'

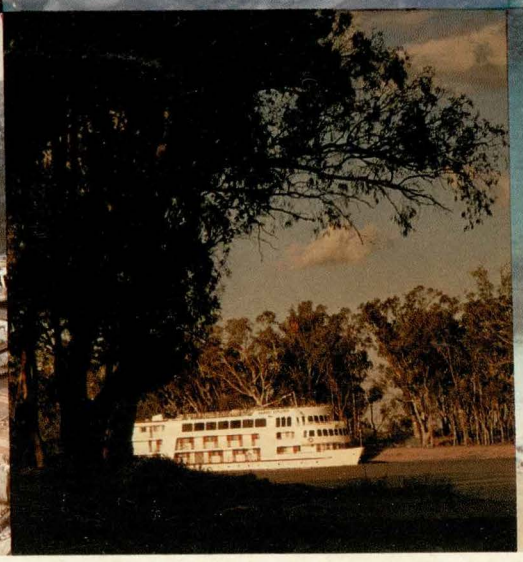
DAVARA HOTELS

HRD 1606

It's amazing anyone in Australia ever gets any work done.







It almost seems there's hardly ever a cloud in the sky.

There are endless miles of white sand and swaying palm trees, surfing, water sports, snow skiing, racing, fishing, skindiving, blondes in bikinis.

All very difficult if you're trying to get any work done.

But all rather wonderful if you're not.

Australia is in fact, the biggest holiday resort island in the world.

Why not let Ansett Airlines of Australia, who know it better than anyone else, fly you around on one of their low-priced packages.

We've seen it so many times, we can almost keep our eyes on our work.

Ansett.