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PACIFIC ISLANDS

M O N T H L Y

Vol. 59 No. 16

VOICE OF THE PACIFIC

April/May, '89

Cover Story 16

Developed Western nations may have the luxury of time in which to debate the possible consequences of the Greenhouse Effect. But in the Pacific, where whole islands may disappear in the face of even a slight increase in sea level, time is running out. Peter Roy of the New South Wales Department of Mineral Resources and University of Sydney geography lecturer John Connell examine the horrific consequences of the Greenhouse Effect on the region's fragile island environments.

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OPINION

A double helping of PIM . . . and an apology to our readers

THIS ISSUE of *Pacific Islands Monthly* represents both the first time the magazine has appeared as a double issue, and the first time its pages have been devoted to a vital but often ignored element in the region's future.

The appearance of this April/May issue is in response to legal matters and production difficulties arising from the March issue — which problems resulted in distribution of that issue being delayed. We apologise unreservedly to our readers for the delay but assure them that a disadvantage was put to ultimately good effect and that we will now again be able to provide them with coverage of Pacific affairs on a timely basis. All subscribers will receive an extra month's issue of the magazine.

In the difficulties that accompanied the production of our March issue, one or two gremlins made their appearance; specifically in that issue's Opinion page, in which former *Islands Business* editor John Richardson was mistakenly quoted as saying that correspondent David Robie was a journalist "who is either anti-right or pro-left". Naturally, this was an error: the sentence should have read "David Robie's articles reflect a journalist who is neither anti-right nor pro-left". We apologise to David — and to John Richardson — for the typographical error.

AT FIRST glance, the stories contained in this double issue may seem to represent a fairly broad coverage of regional events: violence and sabotage on Bougainville; French Polynesian politics and the mysterious threat of ciguatera; tree snakes; Port Moresby and Tuvalu's new inter-vessel.

But this issue's Special Report — on the regional consequences of the Greenhouse Effect — reveals the overall theme: that of the growing need to address threats to the quality of life throughout Oceania.

That need overwhelms questions of politics, economics and social issues, for it is inherent in all of them: it's just not possible to devote energy to politics or business if one is (as may literally be true within 50 years) up to one's knees in effluent, environmental destruction, rising sea levels and other horrors of nature. Indeed, environmental questions can be seen at the heart of the majority of issues affecting the region today — not least in the despoliation of Bougainville, and the terrifying spiral of violence that has grown out of an inability to resolve the question of land rights and protection of resources.

Also relevant to Bougainville (and chillingly ironic in the context of the deaths that have occurred there) is the story on Pages 38 and 39. For much of the past century, the Western world has looked on the Pacific — in fact, on the globe as a whole — as no more than a source of cheap labour, timber, minerals and foodstuffs. It has sought to 'develop' natural resources primarily for the benefit of the West, and only recently for the benefit of those who, having seen so much destruction of their heritage for the benefit of others, are now lobbying for a more equitable share of the world's wealth.

But as World Bank researchers have found, development and environmental protection are not mutually exclusive concepts. In truth, they can work hand in hand, for the good of both producer and consumer.

As the World Bank report shows, environmental protection and awareness can actually increase the profitability of development: the forest that is retained upstream of a hydroelectric dam could contain useful drugs, and certainly is home to animals and plants that add to the diets of the local human population.

As global problems of the order of the Greenhouse Effect begin to make themselves felt, the Pacific has to realise that it cannot turn to others for solutions — for those others still be battling the same problems on an even greater scale. Oceania has to act on its own behalf, if only to demonstrate that otherwise powerless nations can take the steps necessary to preserve a region of astonishing natural beauty and richness.

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THE REGION

Ciguatera: blame it on the bomb?

An Australian researcher has found links between military activity and a potentially fatal toxin. By David Robie

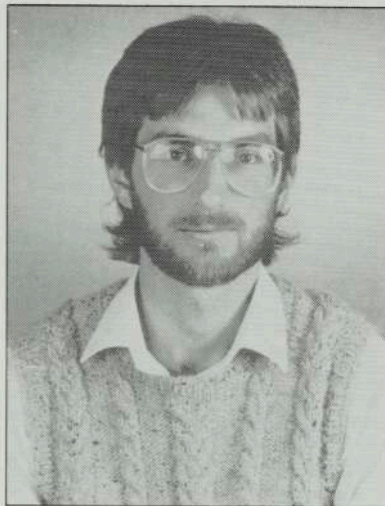
DOCTORS AND researchers well know the often deadly course of ciguatera poisoning but the causes of outbreaks have remained unknown. Australian medical researcher Dr Tilman Ruff may have solved the mystery.

Dr Ruff is a researcher at Melbourne's Monash Medical School. He says outbreaks of ciguatera poisoning in the Pacific are more serious and frequent than has previously been made public. "While in Tahiti I learned of outbreaks, probably or possibly related to military activities, that have not been documented or studied, in the past and about which there is no published information," the doctor says.

The British medical journal *The Lancet* has published Dr Ruff's findings, which suggest a link between ciguatera poisoning and military activities in the region. Tahiti's Health and Environment Ministry is studying the report, though one official said "there is nothing new, it is really a review of existing data". The link has long been suspected. "I don't think it is a big secret," says Dr Ruff, "it's just that this is the first time the data has been put together in a credible, scientific way."

Dr Ruff says recent outbreaks and changes in the incidence of poisoning indicate direct and indirect links between ciguatera and nuclear explosions in the Pacific. While he has found no direct link between radioactive fallout and ciguatera, the only reported study addressing this question was conducted in the central Pacific 30 years ago — further research is vital. "Nuclear explosions directly damage atolls and coral reefs. Underground blasts may trigger earthquakes," Dr Ruff says. "The indirect effects are probably larger and related to the ecologically disruptive impact of human activities on fragile island and coral reef ecosystems." The military are often responsible for those activities — missile tests, port facilities, airfields, ship and submarine movements, dredging and channel blasting, seabed drilling and the dumping of refuse.

The Pacific has long been an important military theatre, with naval, air and communications bases in the region. But only France continues to explode nuclear devices in the region and by the end of 1988 had staged 103 underground tests at Moruroa



Medical researcher Dr Tilman Ruff: a macabre connection between disease and environmental destruction.

and Fangataufa atolls in the Tuamotu archipelago.

The incidence of ciguatera in the region is severely under-reported: the South Pacific Commission estimates that official statistics reflect, at best, a mere 20 per cent of actual cases. For the region as a whole, excluding Papua New Guinea, 219 cases per 100,000 population were reported for

1987. Dr Ruff's research for the period 1973-87 shows rates more than three times the regional average were recorded in French Polynesia, some of the isolated island groups in the north-central Pacific (Kiribati, Tokelau and Tuvalu), the Marshall Islands in north-east Micronesia and Vanuatu. Ciguatera is less common in the western Melanesian nations of PNG and the Solomon Islands, where the population is less dependent on marine resources and where reporting of cause of death is less complete.

"Between 1960 and 1984 there was a general flare-up of ciguatera in French Polynesia, with more than 24,000 cases being recorded among a population that grew from 34,500 in 1960 to 174,000 in 1985," says Dr Ruff. The number rose sharply through the 1960s, peaking in 1972-75 at 1200 per 100,000 — a ten-fold increase over the 1960 figure. Ciguatera had not occurred in Hao before January 1965 when the French Atomic Energy Commission began to convert the atoll for a staging base for nuclear testing at Moruroa and Fangataufa atolls. The building of an army camp for 2000 soldiers, a permanent base for bomb assembly and a 3500 metre runway required the construction of piers and dredging of large quantities of coral. The first case of ciguatera reported from Hao involved fish caught at the original French landing site in August 1966. The disease then spread to other areas of the atoll over the next two years.

"Fishing in the Moruroa lagoon has been officially banned ever since the nuclear test explosions began," says Dr Ruff, "although the ban has not always been respected, particularly by Polynesians. Moruroa has had a high incidence of ciguatera over the past 20 years, in which time there has been extensive coral damage caused by the construction of military infrastructure and by the explosions themselves. Several submarine slides have accompanied nuclear tests and large areas of the atoll continue to subside."

Dr Ruff says the impact of ciguatera can only be reduced by curbing ecologically disruptive human activities on and near coral reefs. "Military activity conducted in the Pacific by nations distant from the affected regions is an assault on a delicate ecosystem and the human population it supports." □

Causes and effects

Ciguatera poisoning occurs when a toxic marine organism, *Gambierdiscus toxicus*, is absorbed. The organism is present in off-shore plankton eaten by reef fish that are in turn consumed by humans. The toxin causes no apparent harm to the fish but may cause death to humans.

In addition to the common symptoms of food poisoning — vomiting, cramps and diarrhoea — the victim may also experience tingling of the mouth, pins and needles and a curious reversal of hot and cold sensations. The poison is usually severely debilitating and can be fatal.

Outbreaks are most commonly linked to disturbances to the ecology of coral reefs by natural events — storms, earthquakes, tidal waves and heavy rain — or to human activities.

FRENCH POLYNESIA

Government? What government?

The administration declared "illegal" by a Papeete court is still facing an uncomfortable and politically embarrassing crisis. By David Robie

AFTER THE embarrassment of last year's "yo-yo ministers" affair, in which three ministers who had resigned were hurriedly reappointed to push through Tahiti's budget, President Alexandre Leontieff was caught in a Catch-22 crisis. Was his Government legal or not?

According to the local Government Commission, the press and the Administrative Court, it was not. The three-judge tribunal — including Chief Justice Jean Levoignat — ruled that the Government had in fact been illegal since last June because of the unconstitutional appointment of five ministers. The verdict plunged Tahiti into its biggest political crisis since Leontieff came to power in October 1987.

"The Government no longer has any credibility," declared Opposition MP and businessman Quito Braun-Ortega, calling on the President (who is in effect a prime minister) to resign. "What sort of a leader do we have ... and what does he represent?" he added. *La Depeche* declared in a banner headline: THE GOVERNMENT IS SHATTERED.

According to Braun-Ortega, the government's failures have been economic, political and institutional. He accused Leontieff Government of having a vague economic plan that was in reality "nonexistent", and one that was driving the territory into "decadence". On the political level he launched a scathing attack on the competence of ministers in Leontieff's Tiamara party — excluding the President's brother, Boris Leontieff, who took over the economy portfolio during the crisis. Concerning the territory's institutions, Braun-Ortega claimed that Alexandre Leontieff had arrogantly ignored the laws and the 1984 self-governing statute to the point where he was "completely annihilating" the role of the Territorial Assembly.

"In these conditions," added Braun-Ortega, "we're demanding the resignation pure and simple of President Leontieff, to put the counter back at zero and so we can resume on a healthy basis." A protest letter to High Commissioner Jean Montpezat drew the response that in the absence of legal guidelines, he preferred to let "internal autonomy" run its course.

Irritated, Leontieff declared: "Trying to run a government this way



Politician and businessman Quito Braun-Ortega: Leontieff is leading the territory into "decadence".

is unacceptable and impracticable. It is unacceptable that the territory is governed with the empty interpretations of the statute by the Administrative Court." As well as appealing immediately to the Council of State, he asked Speaker Jean Juventin to call an extraordinary session of the Assembly by April 3 to endorse his Government and planned to have the "intolerable" statue changed.

The day after the Administrative Court declared the Leontieff Government illegal, the President called the extraordinary session of the Assembly and assured Tahitians that in the meantime they still had an effective cabinet with the five remaining ministers taking over the disputed portfolios — Boris Leontieff (Economy and Finances), Jacqui Drollet (Housing and Social Affairs), Raymond van Bastolaer (Urban Affairs and General Administration), Ioane Témauri (Agriculture and Culture), and Alexandre Leontieff himself with the Works, Employment, Professional Training, Tourism and Sports portfolios.

But the "official" cabinet was one minister short of the minimum of six required by law. The surprise court ruling hinged on the definition of how the other five ministers left the cabinet: did they resign, were they sacked, or were they simply replaced?

The judges overturned the appointments on June 30, 1988, of Economy

and Finances Minister Louis Savoie and Urban Affairs and Administration Minister Francois Nanai; and on November 26, 1989, those of three ministers who had resigned nine days earlier but who were recalled for the crucial budget vote: Georges Kelly, Government vice-president and Agriculture Minister; Huguette Hong Kiou, Minister of Housing and Social Affairs; and Napoleon Spitz, Minister of Works, Tourism and Sports.

By annulling the five ministers' appointments the court effectively made the entire Government illegal by violating the statute that lays down a minimum of six ministers and a maximum of 10 at any one time: Article 8 of the statute requires the President to present his cabinet list to the Territorial Assembly for endorsement by secret vote within five days of an election.

"The territory hasn't got a Government. What is going to happen now?" asked *La Depeche*. "It must be pointed out that the Government head himself hasn't been affected by the court verdict: Alexander Leontieff remains President of the territory."

Meanwhile, in the recent communal elections Leontieff's Tiamara party fared well and all attempts by Flosse's Tahoeraa Huiraatira candidates to oust sitting mayors representing the Leontieff coalition were defeated.

One of the surprises was the first-round defeat of Jacky Teuira, the former Tahitian President and Flosse's right-hand man, by Boris Leontieff in Arue. But with Boris Leontieff failing to win the 50 per cent vote needed for outright victory, a run-off vote was needed and, despite a major campaign by Flosse on behalf of his lieutenant (who is honorary party president of Tahoeraa), Leontieff gained 1850 votes against Teuira's 1186 to become mayor.

While Flosse suffered setbacks, the pro-independence parties of Oscar Tumarua's Tavini Huiraatira and la Mana Te Nunaa gained ground. In Mana leader Jacqui Drollet stood as candidate in Hitia o te Ra on the east coast of Tahiti, and was narrowly defeated by nine votes. However, he has filed allegations of extensive fraud by his opponents with the Administrative Court and the result is expected to be overturned.

A significant feature of the election is that none of the 30,000 French settlers living in Tahiti were accepted as candidates by local political leaders of parties. All 970 councillors elected are Polynesian or *demis*. □

PALAU

Compact vote likely . . . again

The tiny but violence-racked Republic of Palau is set to go to the polls once more, to determine its future relationship with the United States. By Ed Rampell

THE 'HOLY GRAIL' known as the Compact of Free Association is now being hotly pursued once more, from New York to Washington to Koror, with talk of yet another political status plebiscite.

The United Nations, the United States and the Republic of Palau (ROP) are taking measures to resolve Palau's long deadlocked Compact approval process with a possible seventh Compact referendum, as the republic's tiny electorate of only 10,000 prepares for the possibility of casting its ballots on Free Association. The proposed plebiscite would be Palau's *eleventh* national vote since 1980 (not including numerous Presidential, Senate, House and State elections), giving a whole new meaning to the terms "universal" suffrage and "participatory" democracy. Some wits have even suggested that Palau may become the world's first nation to have more votes than voters.

In April, the UN Trusteeship Council sent a visiting mission to Palau to observe steps toward bringing into effect the Territory's proposed pact with the United States, which has evaded passage since at least 1983 and has seen the death by gunshot wounds of two presidents, the bankruptcy of the nation, and a world record of plebiscites. The mission was also under instructions to obtain information on political, economic and social conditions during its two-week visit.

There have been four referenda since 1980 on Palau's nuclear free constitution (the world's first) and six plebiscites on the proposed Compact between Palau and the United States, which would phase out the UN Trusteeship and replace it with a political status granting Palau home rule and substantial US assistance.

The Pentagon, meanwhile, would have access to the strategically located Western Pacific archipelago — but the Compact has repeatedly failed to attain the 75 per cent approval necessary to override Palau's anti-nuclear constitutional stipulations.

Meanwhile, President Bush's Administration has been attempting to gain swift Congressional action on the Compact. On March 8, legislation for Compact implementation was introduced once again in the House of Representatives, in a package that attempts to address Palauan Compact concerns through its subsidiary agree-

ments, including: monetary relief for Palau's IPSECO power project debt (up to \$US43 million) as well as funding for health care, prisons, a public auditor and special prosecutor. The executive branch wants Congress to act as soon as possible, prior to the proposed plebiscite which, according to a State Department letter to Congressional committees, "Since many elements of Compact implementation . . . are linked to actions this fiscal year . . . needs to occur by early summer." ROP Vice President Kuniwa Nakamura also agrees that a seventh referendum on the treaty could be held in June or July.

Palau President Ngiratkel Etpison's Administration is also active on the Compact front: a 26-member Future Political Status Commission has been established, with representatives from all parts of the Palauan political spectrum. On the left, Palau's Senate is represented by staunch anti-nuclear leader Roman Bedor; the House of Delegates is represented by attorney Johnson Toriniong, nephew of Opposition leader Governor Roman Tmetuchl (who once criticised the Compact as "a masterpiece of cross reference"), and on the right is zealous Compact supporter and former senator Hokkons Baules (in a taped Australian Broadcasting Corporation interview aired in February, a man who confessed to firebombing the home of an American attorney opposing the Compact and IPSECO named Baules as the person who hired him to carry out the arson and attempted murder. The US Congress's General Accounting Office investigative team has also claimed Baules received a \$100,000 'pay-off' from IPSECO).

The Commission's position statement says that "any conflict between the Palau Constitution and the Compact will ultimately result in the changes to be sought *within* . . . the Compact" (emphasis added) and asserts that "any proposal to accommodate changes by effecting amendments to the Palau Constitution will not be considered."

This hard-line position could result in renegotiation, but the United States has flatly refused to reconsider the terms of the Compact.

According to Palauan officials, the Government in Koror is disquietingly similar to the uneasy coalition now ruling Israel: President Etpison beat

Compact critic Governor Tmetuchl (candidate for the Coalition for Open, Honest, and Just Government) by only 37 votes, while the Coalition's vice presidential candidate, Kuniwo Nakamura, beat Compact supporter Frank Asanuma by a landslide.

Although Etpison is supported by the same pro-Compact faction that previously supported slain Presidents Salii and Remeliik, the Opposition's strength has forced him into a position of compromise . . . if not into rapprochement. Beneath this mood of coalition and conciliation, however, political faction-fighting — the Palauan pastime — still rages. Four out of five of the President's ministerial choices were rejected by an Opposition dominated OEK (National Congress), and the posts for attorney general, special prosecutor and attorney general are unfilled at time of going to press.

One of President Etpison's first conciliatory moves resulted in the resignation of Attorney General Philip Isaac, who gave as his reason for resigning the President's pardon of Johnny Gibbons, younger brother of Paramount Chief Ibedul (a Compact critic and repeat presidential aspirant). Gibbons was convicted of possession of a firearm and ammunition (both illegal in Palau) following a confrontation with the police, while Isaac — who reportedly wore a pistol strapped to his ankle every day of the Remeliik murder trial — had prosecuted the assassination case against Governor Tmetuchl's son and nephew, though he had no evidence to support his case. The American Civil Liberties Union has charged Isaac with "prosecutorial misconduct" and when the ROP Supreme Court overturned the lower court's convictions it severely rebuked Isaac. Ironically, Isaac's resignation was on the grounds that the Attorney General's Office "until now has been permitted to function immune from the vicissitudes of politics."

The long-awaited investigation by the Congressional General Accounting Office into allegations of heroin trafficking, widespread government corruption, terrorism and the IPSECO power project should be released to the public in May, during which month the UN mission to Palau will also make its report on the Trusteeship Council during its annual deliberations on Micronesia. □

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PAPUA NEW GUINEA

Sabotage, killings grow as Bougainville crisis deepens

What began as a compensation claim has erupted into random shootings, ambushes and unexpectedly efficient guerrilla warfare. Frank Senge reports.

THE VIOLENCE on Bougainville island has become a confused nightmare for all concerned: national and provincial governments; law enforcement agencies; local landowners, business houses and the people of all Papua New Guinea.

What began as a simple, if ludicrous, compensation claim of K10 billion in April last year has turned into a spiral of bloodletting that threatens to affect the entire nation. At the time of writing six men have been shot dead and more than 20 wounded in sporadic exchanges of gunfire between landowners and a combined police-defence force operation. Four of the seven dead — two plantation labourers and two defence force soldiers — were non-Bougainvilleans ironically chosen by fate to represent the three regions of the country: Highlands, Mamose (New Guinea mainland) and Papua.

In regionalistic PNG, this twist of fate is significant. Already, tensions are building up in several educational institutions against the Bougainvillean student population; a certain barometer of public feeling.

Though the perpetrators of violence remain the same elusive militant landowners, the target of their anger has shifted dramatically from one foreign company to the Government and people of PNG. On the face of it the problem appears to have become more complex, but the complexity was there from the beginning. Few people realised the potential (or, if they did, failed to voice it) that existed starkly in the island's poignant history of cultural clashes, succession movements and long-standing demands for a better deal out of the copper mine.

When the landowners made a compensation claim for K10 billion last April, it was seen as no more than another in a history of such claims throughout PNG — ignoring the fact that this particular claim was already 20 years old and had behind it frustrated, angry people with the full support of the provincial government and an important coalition partner, the Melanesian Alliance led by Catholic priest — and regional member for

Bougainville — Father John Momis.

When landowners led by University of Technology graduate and former Bougainville Copper Limited surveyor Francis Ona broke into the company armoury, stole huge quantities of explosives last November and set about systematically destroying company installations, it caught the Government of Prime Minister Rabbie Namaliu completely unaware.

Shocked, the Government tried to establish direct communications between the State and the rebels — an effort doomed to failure. Negotiations had been the least of the landowners' requests for those 20 years, and their patience had now run out. They wanted their claims met. Immediately. With Ona still in the bush and no-one fully appreciating what he wanted, a high-powered ministerial committee was established. Headed by Deputy Prime Minister Akoka Doi, the committee was to review the 1974 BCL Agreement that had already been deferred in 1980 (at the time of writing, there has yet been no communication between BCL and this committee).

The problem was compounded by simple under-estimation of Mr Ona and his group of militant landowners. He was referred to facetiously as a "Rambo-style terrorist" in the Papua New Guinean media, ordered to return the explosives he had stolen and to come out of the bush or feel the full weight of the law.

Few took notice of the effectiveness with which his group was blowing up guarded BCL installations, worth millions of kina, at will and giving the police the slip each time.

Further, if few observers realised Ona's capacity to carry on an effective campaign, fewer still studied the frustrations driving him on. In matrilineal Bougainville, he was never in direct line to benefit from the royalties and other benefits derived from the mine: whether he received anything at all was the prerogative of his maternal uncle, Matthew Kove, a titleholder of the mine lease land and direct beneficiary of royalties. The holding of

Only a few months ago, sabotage was the worst of BCL's problems.

Landowners resort to sabotage in Panguna

Bougainville landowners force the shutdown of PNG's largest revenue earner as they turn to violence in their quest for compensation. by Wally Hiamboh

IN APRIL last year, when landowners of Papua New Guinea's giant copper mine on Bougainville Island lodged a K10 billion compensation claim for their land (or what was left of it), no-one took them seriously.

Understandably so, it was thought the claim was ludicrously far-fetched and that no-one in the world — much less in PNG — had that kind of money. So the matter was left to die a natural death. No-one expected the landowners, generally known as quiet and easygoing, to press on with their claim to the extent of violence.

Almost all negotiating parties were therefore unprepared when the threatened violence did erupt at the end of November. Bougainville Copper Limited (BCL) and the National Government were left stunned as a handful of landowners, led by former BCL surveyor Francis Ona, set about burning buildings and destroying vital communications and electricity supply installations.

Equipped with a massive quantity of explosives and walkie-talkies thought to have been stolen from BCL, the

landowners became guerrilla fighters and, operating from thick forests, set about crippling PNG's largest revenue earner. For a fortnight they continued sporadic attacks on mine property, leaving no clue to their whereabouts. A police squad of 200 men specifically trained to quell trouble and led by Police Commissioner Paul Tohian left to chase without success the saboteurs, who were described as "terrorists" and "Rambo-style rebels". And up to the end of December last year, the police were still searching in vain for the saboteurs.

The troubles began on November 22 when a group of armed men held up security guards at BCL's explosives magazine and stole 228 items of explosives, including detonators and fuses. Before the company or the Government could act they struck on November 24, burning an administrative block, a helicopter and its hangar, and a guest house.

The attacks continued on November 26 when an electric shovel used for digging ore was damaged and attempts were also made to destroy

other installations at the Panguna mine site. The total cost of the saboteurs' actions was estimated at K700,000.

While police reinforcements were called in from Rabaul, BCL chairman Don Carruthers flew to Port Moresby to assess the situation and to hold urgent talks with Prime Minister Rabbie Namaliu. Mr Carruthers later issued a statement that promised CRA, the majority shareholder in BCL, would "seriously reconsider" its future investments in the country. CRA is the major developer of an alluvial gold deposit at Mt Kare in the Highlands and Hidden Valley in Morobe Province. Carruthers said the weekend "acts of terrorism" at Panguna were the result of "unrealistic expectations".

"There could not be anything more damaging to PNG's reputation as a place to invest than an attack on Bougainville Copper, which has been operating here for many years and always tried to do the right thing," Mr Carruthers' statement read. "Raising money for future investments in any sector would be almost impossible if



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the titles by elders led to conflicts with more highly educated, younger men; and one such resulted in Kove being kidnapped, allegedly by Ona's group. He is now feared dead.

The violence on Bougainville, so far directed at installations and with only isolated exchanges of fire between police and landowners, took on a more direct aura of menace on March 17, when a lone gunman armed with a semi-automatic rifle stole into Arova Plantation and sprayed a labourer's house with bullets.

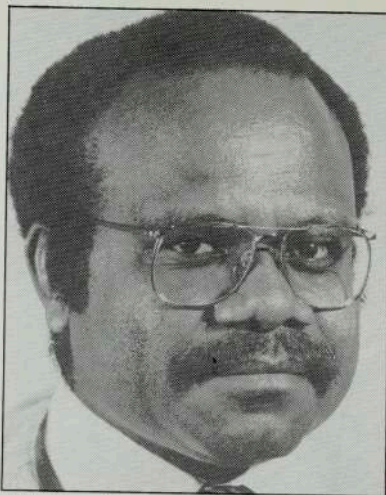
Two men from the Western Highlands were shot dead; three others were hospitalised with gunshot wounds. The shooting was allegedly in retaliation for the brutal killing of a woman a week earlier, and was unrelated to the Ona cause. However, it unleashed a chain of events that drastically affected Ona and his cause. Suddenly it was not only BCL, the Government and the police the landowners were dealing, with but non-Bougainvilleans on the island.

On the Sunday after the shooting and in the week following, riots and violent mass demonstrations rocked the townships of Toniya, Kieta and Arawa. Arova International Airport terminal was burnt down, the runway dynamited and two aircraft belonging to local aviation firm Bougainair burnt. The police armoury at Buin government station was raided and burnt, and policemen's families had to be evacuated. A district office at Torokina on the West Coast was burnt down.

There were armed clashes between police and villagers, leading to the death of a villager and the wounding of scores of others on both sides. Police recovered a large amount of unexploded World War II bombs in the possession of landowners. The National Government deployed an additional 100 policemen, called out the PNG Defence Force to assist the police and extended a previous curfew for a further two months in the affected areas.

Foreign media and diplomats were banned from Bougainville; Australian Deputy Commissioner Howard Brown and a Channel 7 news team from Australia were ordered out of the province. Mr Namaliu announced later that he had implemented the ban out of consideration for the safety of the foreigners.

On the morning of Thursday, April 6, 20 PNGDF soldiers on patrol near Irang village, six kilometres south of Panguna mine, were suddenly ambushed by about 30 landowners armed with automatic weapons. Lieutenant James Yandu and Private Lomas Jaruga were shot dead and Warrant Officer Jerry Gari was wounded: soldiers retaliated, killed two militants and wounded two others.



PM Namaliu: Bougainville 'terrorists' can expect no mercy.

The latest shootings have led to a general feeling of unease and tension outside Bougainville, particularly at the University of PNG and University of Technology in Lae where threats have been made to the lives of Bougainvillean students.

Prime Minister Namaliu, Deputy PM Doi and Foreign Affairs Minister Somare jointly appealed to the nation, and particularly the provinces and the relatives of those who had been shot, to show restraint.

The killings have marred the original aims of the landowners' uprising: to force BCL and the Government to return more of the proceeds from the mine to the province. Indeed, BCL management told *Pacific Islands Monthly* that the focus of the landowners' attention had been turned away from the company completely — until April 15, when the destruction by explosives of a power transmission tower forced the mine to close down for two days.

Sympathisers are slowly withdrawing their support from Mr Ona. One of the first to publicly withdraw his support was North Solomons Premier Joseph Kabui. When Ona failed to meet an ultimatum to come out of hiding on Thursday, March 23, Mr Kabui ceased his attempts at liaison with him, and for him with the National Government. Kabui had gone to the extent of having his cabinet endorse a resolution to request the National Government to guarantee Mr Ona safety and immunity from prosecution, but the Government rejected his request, saying it was "impossible". With the police now accusing Kabui of aiding Ona, he told *PIM*: "I have done enough communication. Francis should realise that the longer he stays, the worse it is going to be."

"A lot of things are happening, and people are pointing accusing fingers at

him. Events are now clouding the original issue — and that is striking a better economic deal. We wanted to work out a formula [that] would enable a lot of the money generated in the province to stay here."

One thing in Ona's favour has been a lack of proper intelligence: in the seven months he and his group have wreaked havoc on Bougainville, nobody had been able to discover how many people are in his group or how well equipped it is. Ona not only knows his Panguna landscape well, but it has become increasingly apparent that he has access to very modern semi- or fully automatic weapons.

That position has now changed, and Mr Namaliu has confirmed that he now has adequate information on the group. In a nationwide address, the Prime Minister said: "There is growing evidence that these minority groups have been receiving outside assistance in the form of high-powered weapons."

"This is truly a sad event in our nation's history. Weapons meant to kill are now being used against other Papua New Guineans . . . Those responsible for bringing in and using such weapons can expect no mercy or sympathy."

Mr Namaliu did not disclose any of his sources, but admitted the information had come from overseas and that he also had information on the strength of Ona's group.

It is uncertain how he will use this information: many people — including his Cabinet ministers — feel the Prime Minister has been dictated to by Father Momis and his Melanesian Alliance for too long.

Momis has been given a free hand to arrange a peaceful solution, but so far nothing has come of it and the PM has formed a second committee, comprising Premiers and headed by veteran parliamentarian John Kaputin, to bring the conflicting parties to the negotiation table.

Mr Kaputin, however, has thrown his assignment back at the Government, calling for clearer terms of reference and more defined powers.

Perhaps the tragedy of the whole situation is the lack of preparedness for what the immediate future may hold. As in December — though the situation has become far more serious in the interim — nobody wants to think of the future, and as the nation reels from this latest threat to its economic lifeblood (BCL supplies almost a quarter of the national budget), the Prime Minister continues to plead for peace and harmony. "The alternative is too tragic, too destructive to even consider," he told the nation.

Perhaps thinking about the alternative might inspire PNG to appreciate the gravity of the situation. □

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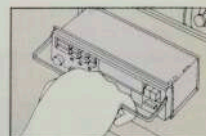
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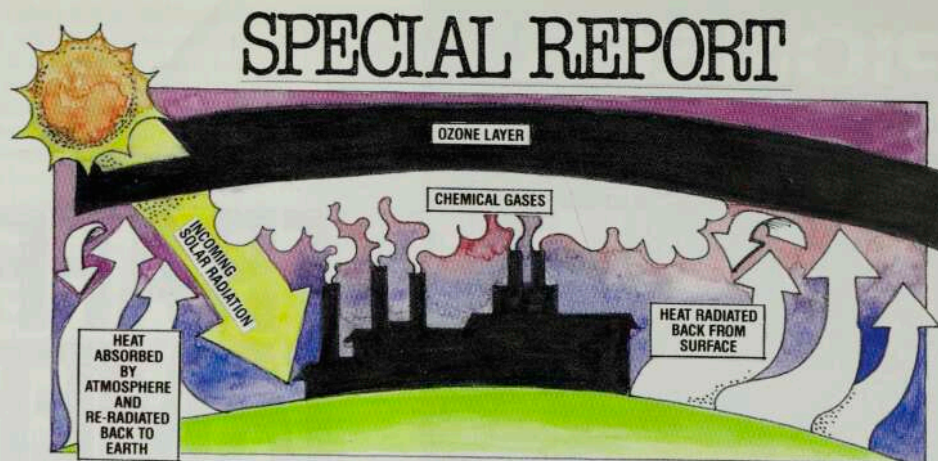
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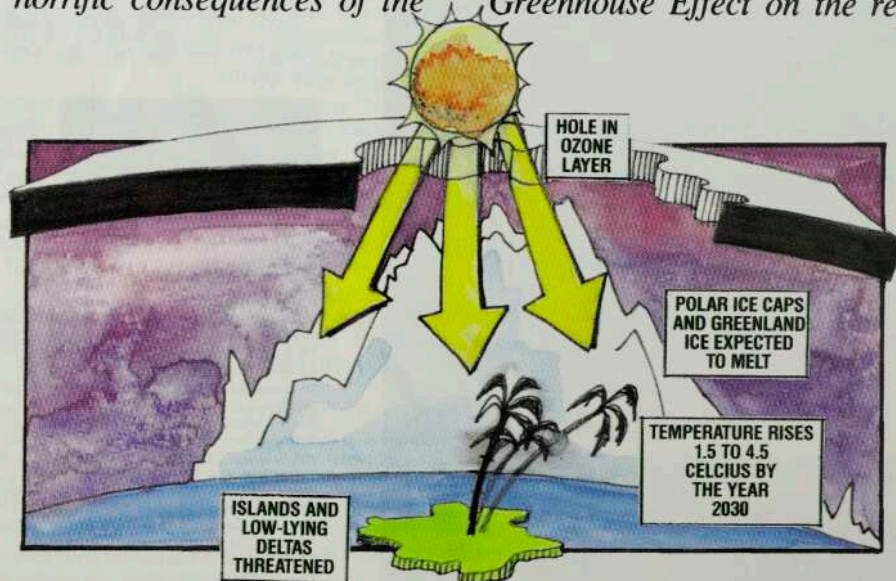
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THE GREENHOUSE EFFECT

Where have all the islands gone?

The spectre of the Greenhouse Effect has dramatically raised the developed world's interest in the environment, but positive action is slow in coming. In the Pacific, where entire nations may be swallowed, time is already running out. Peter Roy of the New South Wales Department of Mineral Resources and University of Sydney Geography lecturer John Connell examine the horrific consequences of the Greenhouse Effect on the region.



ENVIRONMENTAL issues have attracted unprecedented media and public attention in the past 12 months, and everywhere there is a growing awareness of the problems, if not the solutions. The Greenhouse Effect has become the 'flagship' of the international environmentalist cause, and the springboard to the front pages for many other man-made ecological problems.

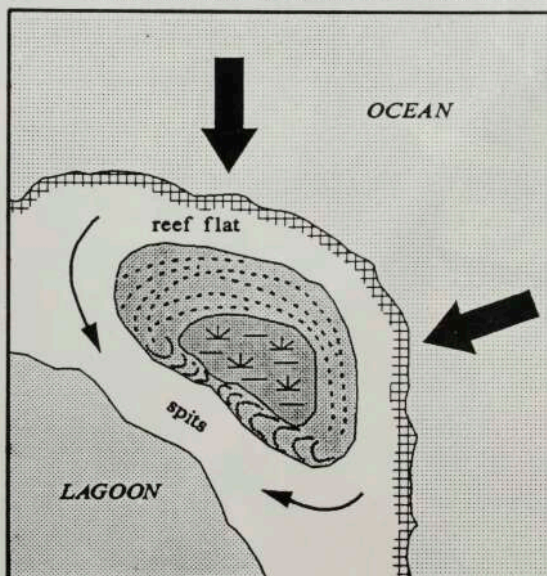
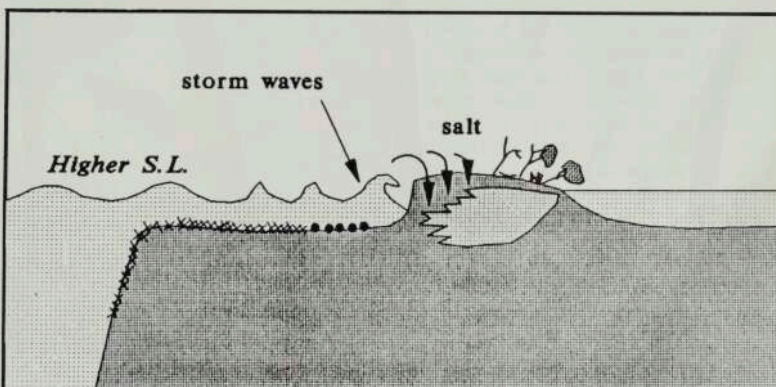
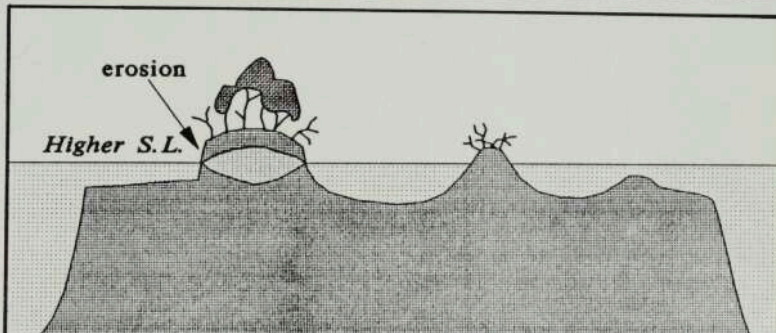
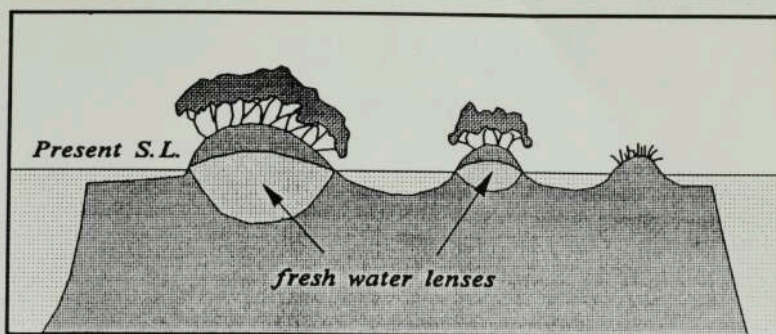
No environmental issue has ever stimulated such global interest and spawned such a variety of popular and academic accounts: ironically, however, while it is a 20th century dilemma, the term "Greenhouse Effect" was coined almost a century ago. Yet there is still considerable uncertainty over the actual nature of the Greenhouse Effect and future rates of climatic change. In the absence of concrete information prophets of doom have gained wide exposure with forecasts of cataclysm, but recent scientific studies have increasingly begun to draw consistent conclusions about future trends and point to the regions where the Greenhouse Effect will cause the most severe problems.

Most nations of reasonable wealth and substantial land mass will adapt to the climatic changes — some may even find considerable economic advantage in new agricultural possibilities. But in the Pacific, the predicted rise in sea level will mean widespread upheaval and potential disaster. "If the Greenhouse Effect raises sea levels by one metre it will virtually do away with Kiribati," says that nation's President, Jeremiah Tabai. "In 50 or 60 years my country will not be here."

He is only too aware that the most extreme situations will be faced by small ocean island states occupying low coral islands. Four Pacific nations — Kiribati, the Marshall Islands, Tokelau and Tuvalu — are composed entirely of low relief atolls and recent studies warn that these states will be devastated if projected sea level rises occur. They may simply cease to contain any habitable land.

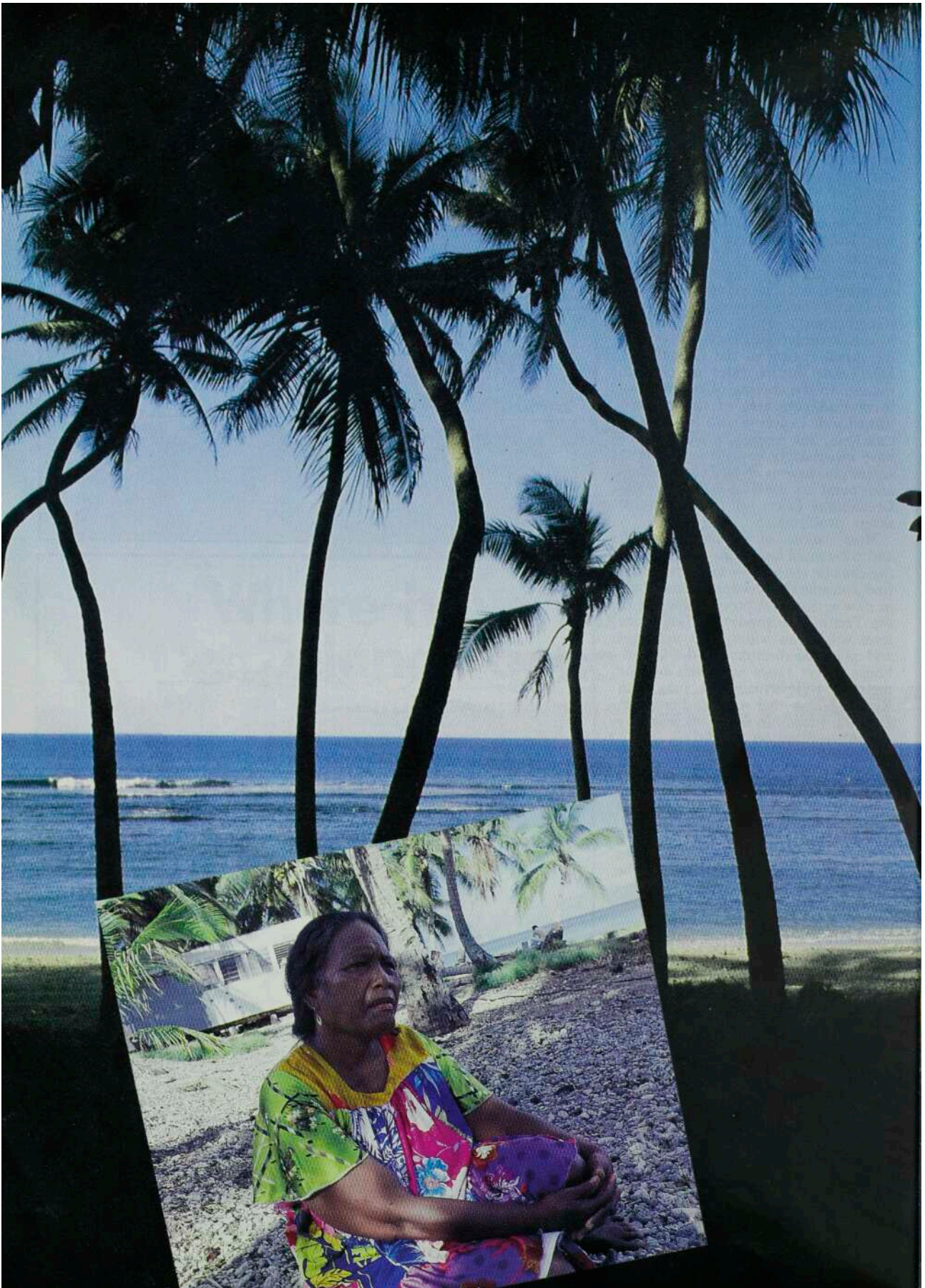
The four atoll states are quite different in language, culture, history and physical environment. Tuvalu and Tokelau are part of Polynesia; the Marshall Islands and Kiribati are in Micronesia. The state of Tuvalu consists of nine coral atolls and reef islands with a total land area of no more than 24 square kilometres, yet spread over 590 kilometres. Kiribati has 20 populated atolls and a land area of 700 square kilometres, but more than half of this (363 square kilometres) is on Kiritimati (Christmas Island), some 3500 kilometres from the national capital, Tarawa. The Marshall Islands has 24 populated atolls, but the majority of the population lives in the capital, Majuro, or on

SPECIAL REPORT

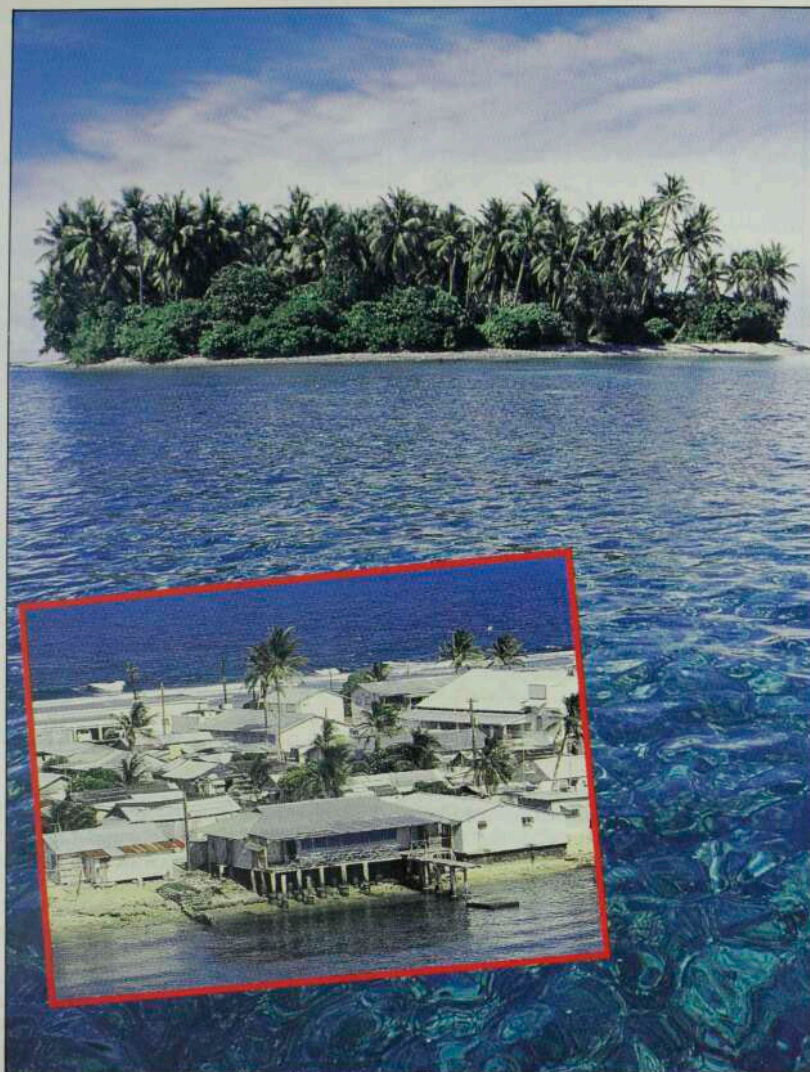


From top: Lenses of freshwater will shrink or disappear as erosion increases and intruding salt water will pollute them.

Bottom: Broad islands with relatively large fresh water lenses form where converging waves build ridges and recurved sand spits. Lower, swampy areas are highly productive but vulnerable to salinisation.



OLIVER STREWE / WILDLIGHT



The sights that lure tourists — and their dollars — to the South Pacific seem destined to disappear unless all the world's nations work together to limit the damage. In any case, out-migration will be necessary as lowlying atolls are abandoned to the waves.

Ebeye near the American missile range on Kwajalein Atoll.

The buildup of industrial gases in Earth's atmosphere over the past 30 to 40 years is now well documented. The resulting Greenhouse Effect is expected to raise temperatures over much of the planet's surface and lead to a rise in ocean levels. The rise will initially come about through an expansion of surface waters and the melting of mountain glaciers; not until much later will melting of the polar ice sheets significantly augment ocean volumes. Coastal erosion will increase as sea-level rises accelerate beyond the upward growth of corals, and will probably be accentuated by a greater frequency of storms.

Analysis of tide gauge records from around the world reveals a small rise

in relative sea level (1.0-1.5 mm per year) over the past few decades. These results have been variously interpreted and it is not clear whether the apparent sea level changes are caused by a global Greenhouse Effect, local climatic variability or increased river discharges into the oceans following the construction of large irrigation schemes and dams.

Rates of expansion of the oceans cannot be determined with any accuracy because of uncertainty concerning the pattern and extent of future heating of the earth's surface, and the rate at which the heat will be absorbed by the oceans.

Extreme scenarios for the next 50 years range from virtually no change in mean sea level to an elevation many metres higher.

The basic effect of a Greenhouse-induced rise in sea level is for lowlying lands to be inundated and for coasts to erode. Erosion, as opposed to inundation, is most severe on shorelines composed of unconsolidated sediment exposed to storm wave attack: a gradual rise of mean sea level will progressively lift the zone of flooding, storm wave and surge effects to new levels, eroding areas previously considered safe. Human responses will vary depending on the values of the coastal land under attack and the resources available to provide protective measures. In Pacific atoll states, where resources are very limited, the provision of expensive engineering works will rarely be an option.

Atolls are accumulations of the remains of reef-forming organisms usually arranged into a rim around a central lagoon and restricted to tropical ocean waters within 20 degrees of the equator. Drilling results from a number of atolls essentially confirm the early speculations of Charles Darwin that the reef deposits accumulated on the peaks of submerging mid-ocean volcanoes. Atoll islands are among the most recent of geological formations — and the youngest in terms of human colonisation.

Islands on atoll rims vary enormously in size and shape, but rarely rise more than three metres above mean sea level. They may be stable but the occurrence of exposed and eroding outcrops of beachrock/coral conglomerate on one hand and newly formed boulder ridges and sand spits on the other indicate that islands are constantly changing shape. The building of atoll superstructures, especially islands, results from a combination of processes of small scale erosion and accretion that can be observed on a day-to-day basis, interspersed by catastrophic changes caused by rare but extremely violent cyclones and hurricanes. Storms have been documented in which waves passed across islands up to eight metres above their land surfaces, hundreds of islanders died and whole island environments were destroyed — either washed away or buried in rubble.

These changes have been viewed in terms of dynamic equilibrium rather than stages in an evolutionary progression, with periods of island accretion alternating with (and largely balancing) erosion. A state of disequilibrium may arise if environmental conditions such as relative sea level or storminess change with time. The theoretical effect of slow changes in relative sea level can be predicted: negative movements would tend to promote the accumulation of sediment masses, while positive movements should increase erosion.

While the spectre of rising sea levels ►

in the future seems to follow inevitably from a Greenhouse-induced warming of the atmosphere, there is growing evidence that its impact will not be the same everywhere. It has been shown that past sea level changes have been influenced by local climatic and oceanographic factors, and the variability of those factors may increase with the Greenhouse Effect. The nature of existing coastlines — whether composed of cliffs or swamps — will also determine the impact.

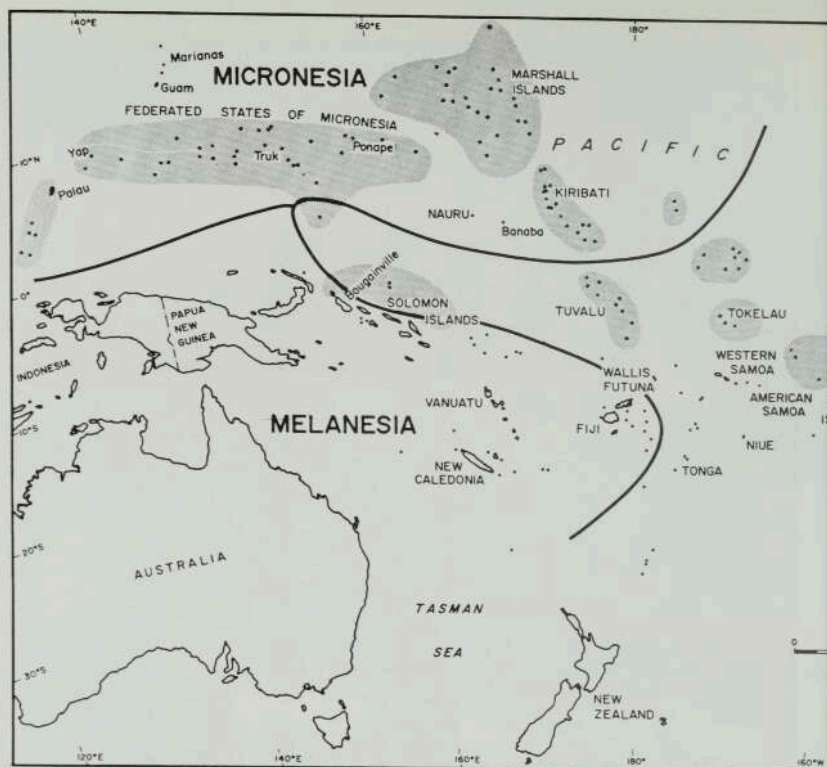
Atoll flora and fauna are generally limited in species diversity, with only a few plant types predominating. The Greenhouse Effect would wreak havoc on island ecology because of the relatively small size and low elevation of atoll islands and the subsequent low salt tolerance of their plants.

Species such as coconut and pandanus can withstand quite high levels of salt and even occasional inundation by storm waves. They are hardy and quickly colonise even small rubble mounds that rise above high tide level, while taro is much more sensitive to salinity changes and grows in low areas, usually in manually excavated pits. Salinity increases after storms have caused substantial decreases in taro productivity.

An atoll's capacity to support human life is closely tied to the existence of a permanent groundwater system. Islands larger than about 1.5 hectares and 200 metres in diameter contain a permanent lens of fresh water surrounded by salt water; the volume of the lens is roughly proportional to the surface area of the atoll. Any decline in island area has a very dramatic influence on the availability of freshwater supplies. Conceivably, in the next 50 years, Greenhouse Effect shoreline erosion of one or two metres a year could reduce the dimensions of some presently inhabited islands to the point where their groundwater supplies would no longer support viable natural environments or permanent human habitation.

EROSION

As erosion reduces island size, groundwater lenses will shrink beneath larger islands and virtually disappear under smaller ones. All except the most hardy vegetation will perish. Sea levels rising at the rates contemplated under future Greenhouse conditions would outstrip the ability of the islands to grow upward, leading to a reduction in 'island freeboard' — height above mean sea level. Storm overwash will therefore become an increasingly frequent occurrence, causing damage to buildings and vegetation and irreversible salinisation of the groundwater lens.



The most severe situations are likely to occur on what are today the widest and most productive islands. These typically occur at bends in the reef crest where waves approach from two or more directions and recurved spits form around a central low area. Many islands of this type support relatively high population densities, and the effect of a marine incursion on this type of island would be destruction of food-producing areas in the interior by salt water and a reduction in the groundwater lens and decreased productivity of coconut and breadfruit crops. Construction of expensive sea walls would be, at best, a stopgap measure; as sea levels continue to rise, so will the ground water table. The central parts of the island would become a shallow and relatively unproductive lake of fresh water that becomes increasingly brackish as storms wash over the island surface.

Coral reefs provide the most limited range of resources for human existence and the most tenuous of human habitats in the Pacific. The soil is infertile and fresh groundwater is very limited; maintaining a livelihood is a considerable task and many atolls have been depopulated and repopulated following abandonment in the wake of storm damage, inspiring migration movements of various kinds. The dying phases of the small community on Merir atoll in Palau were well documented: during the 1960s the

women of Merir grew too old to cultivate taro and the men could not keep the coconut groves clear. The island was depopulated and the few survivors were moved to the Palau mainland, an option open to atoll dwellers in some form of political liaison with larger islands and states.

Resource-poor atoll states have faced a host of development problems and have thus moved rapidly into absolute dependence on the outside world, primarily for aid, concessional trade and migration opportunities. Modern health facilities and medicines have allowed more rapid natural increases in population and population control measures have enjoyed little success. The Marshall Islands now has one of the fastest-growing populations in the world, with widespread adoption reducing the perceived need for family planning. Kiribati and Tuvalu are not far behind and, as populations increase, extra strain is placed on local and imported resources.

Migration is certainly not a new concept in the Pacific. Higher postwar rates of population increase, lack of employment prospects, increased desire for consumer goods and the concentration of facilities on central islands have in many cases resulted in out-migration from atolls. But the concentration of population in urban areas leads to overcrowding and its attendant problems — squatter settlements, pollution, poor nutrition,



increased unemployment and higher crime rates. Thus the idea of permanent emigration to seek one's fortune elsewhere is often the only answer to economic problems confronting the atoll microstates.

It is already well established in Tokelau, where for at least 70 years some of every group of siblings must *tahe* (emigrate) simply because the local resources are seen as insufficient. Tokelau islanders are technically citizens of New Zealand and a majority of Tokelauans now live in NZ.

Migration to the USA from the Marshall Islands (and the Federated States of Micronesia) is possible under the terms of the Compact of Free Association. But for the former British colonies, Tuvalu and Kiribati, only temporary labour migration to Nauru is currently possible. This is constrained by a combination of fixed employment opportunities on Nauru and the inevitable closure of its phosphate mine in the near future.

Permanent international migration is increasingly viewed by many as a key solution to a range of development problems. The 1984 Jackson Review concluded that even Australian foreign aid could not resolve all the region's problems, and suggested that "limited opportunities" for immigration from Kiribati and Tuvalu would be a better option.

Rising sea levels can only worsen in a number of ways the problems of

achieving development in atoll states, though the extent of the changes will vary over time and from place to place in ways that are not yet possible to predict. The erosion of fringing reefs is likely to seriously disturb island environments, reduce the distinctive ecology of tropical lagoons and diminish the fishing potential of all atolls. The Greenhouse Effect is likely, in time, therefore, to lead to a substantial decline in agricultural and fisheries production, and a loss of vital water, timber and firewood resources. These problems will increase over time and reduce the small degree of self-reliance currently demonstrated by relatively few atoll states.

The majority of atoll states will never achieve a significant degree of self-reliance (unless they discover new sources of mineral wealth), but they are capable of moving away from their massive dependence on migration, aid and trade. Self-reliance entails reducing dependence on imported 'necessities' including foods, oil, capital equipment and expertise — a situation that already poses major problems for most atoll states and one that is even less likely under the influence of the Greenhouse Effect.

It is difficult to predict the extent and impact of Greenhouse-induced climatic change in the next 50 to 100 years. Some forecast little change; others feel the Apocalypse is at hand. It is an act of irrational optimism to expect that humanity's past and present degradation of the world's natural environment will not induce some future change in global climate.

Questions as to how much and when the climate will change are largely unanswerable, at least in detail, at this time. There may be geological precedents for different world climates in the past, but there is no precedent for the speed at which present changes are taking place. Even more alarming is the lack of evidence that our present socio-political systems have the capacity or the will to control such global events. The best-case scenario for a technological fix is the development of a non-polluting form of energy production, such as solar energy. But even if this were developed immediately, many decades would pass before it replaced the planet's present energy sources — and pollution — and would likely be defeated by high costs and the vested interests of developed nations that export coal and uranium.

Atoll states are the most helpless of all nations in the face of the Greenhouse Effect. They cannot act individually or collectively to remove or reduce the causes of the effect, and they generally do not have the international legal or economic muscle required to elicit urgent action from the

major developed nations.

They will, eventually, be overwhelmed: everything they have is coastal and therefore vulnerable; there is no higher ground to which populations and infrastructure can be moved. The cost of constructing dikes and pumping stations, an option favoured by developed nations threatened by Greenhouse, is beyond atoll states and would probably do little to solve the problem in any event.

Much more research is vital if we are to understand the Greenhouse Effect's physical, environmental and economic impacts at the local level; research that is likely to be undertaken with financial assistance from the metropolitan states, though in the past nations such as Australia have been unenthusiastic about funding research or development programmes that will strengthen environmental conservation because of their limited contribution to economic growth.

Increased emigration must be seen as one response to the Greenhouse Effect; it is a solution that builds on existing trends but that depends almost entirely on the policies of metropolitan states. A 1985 review of a possible concessionary Australian migration scheme raised the spectre of a new wave of 'boat people' — a situation where islanders take migration matters into their own hands.

Resettlement will pose particular problems as islanders move into environments quite different from their own and the social, psychological and economic consequences take their toll on individuals and groups. Resettlement within the region has often proved unsuccessful in the past, and moves to the metropolitan states would be no more easy.

Long before the contemporary implications of the Greenhouse Effect were recognised, the choice of appropriate development strategies for the atoll states had caused concern. Few world states have ever had such limited prospects for development, have gained so little from contemporary technological change but have nevertheless become so dependent on the outside world. Now it is even more crucial for there to be a focus on development issues in the atoll states. Without further substantial external assistance, there is little doubt that people who were once described as real and potential 'economic refugees' will become, in less than 50 years, a new group of environmental or ecological refugees.

It is extremely unlikely that action within the atoll states alone will allay this gloomy forecast. Some of the most recently populated islands in the world may be depopulated . . . and some of its most recently formed islands may disappear forever. □

THE REGION

Aid where it counts

John Zubrzycki, a journalist with the Australian International Development Assistance Bureau (AIDAB), reports on three Australian self-help aid projects under way in the region.

WEIGHING MORE than 200 kilograms and reaching a length of more than a metre, the giant clam is one of the largest reef-dwelling animals in the world.

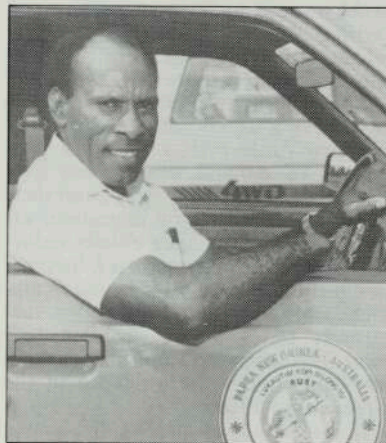
It is also a delicacy, and with buyers willing to pay up to \$A40 a kilogram for the clam's adductor muscle it is not surprising that the number still to be found 'in the wild' is dwindling.

Now, however, a means of satisfying demand for clam meat without endangering the species is being developed in the Solomon Islands. Using the latest agricultural techniques, a giant clam hatchery has been set up at the Coastal Aquaculture Centre (CAC) close to the capital of Honiara. It aims to develop economically viable farming systems for giant clams and, if successful, could become the basis for an important rural industry with fishing communities raising clams on offshore reefs and marketing the meat.

Graham Usher, hatchery manager at the CAC, says that the Solomon Islands villagers have responded positively to growing clams as an extra source of income: "We've already got more requests than we can handle — there is an enormous amount of interest in the project." Established with funding from AIDAB and other development agencies, the Centre is one of a number of research stations operated by the International Centre for Living Aquatic Resources Management (ICLARM), an autonomous, non-profit international scientific and technical organisation based in Manila, which supports and conducts research into fisheries and other aquatic resources. Last financial year AIDAB provided \$100,000 'core funding' for ICLARM, a substantial proportion of which supports the clam project.

Scientists at the CAC have about 30 brood stock of giant clams for spawning, and have already successfully transferred several thousand baby clams to ocean nurseries. The brood clams are held in large fibreglass tanks to enable easy collection of eggs at spawning time. The eggs are collected, placed in tanks and allowed to hatch: after about two weeks the larvae settle on the bottom of the tank and metamorphose into baby clams.

When the baby clams reach a length



Coffee Development Agency general manager Shem Pake: using aid to help PNG Highlanders' efficiency.

of two or three centimetres (which can take from five to seven months) they are transferred to cages in the sea: it then takes five to six years before the clams are ready for harvest.

Mr Usher says the work being undertaken at the Centre has given the South Pacific a head start over South East Asia in giant clam farming — an important advantage given the possible commercial spin-offs for fishing communities in the Solomon Islands and neighbouring countries.

During the first 50 years of European contact with New Guinea, the Central Highlands, defied all attempts at exploration, but since the construction of the Highlands Highway in the 1950s and the opening up of the region, its inhabitants have proved willing to try new methods and crops. Coffee production has grown rapidly and has provided an important source of income to thousands of smallholders, but despite the region's relative prosperity, rising population growth and a shortage of arable land are beginning to make their presence felt. One of the worst affected areas is Simbu, among the smallest and most densely populated of PNG's provinces.

Simbu is also the site of the first large-scale rural development project in PNG to be funded by outside aid donors. AIDAB is co-financing a six-year, \$US1.7 million South Simbu Ru-

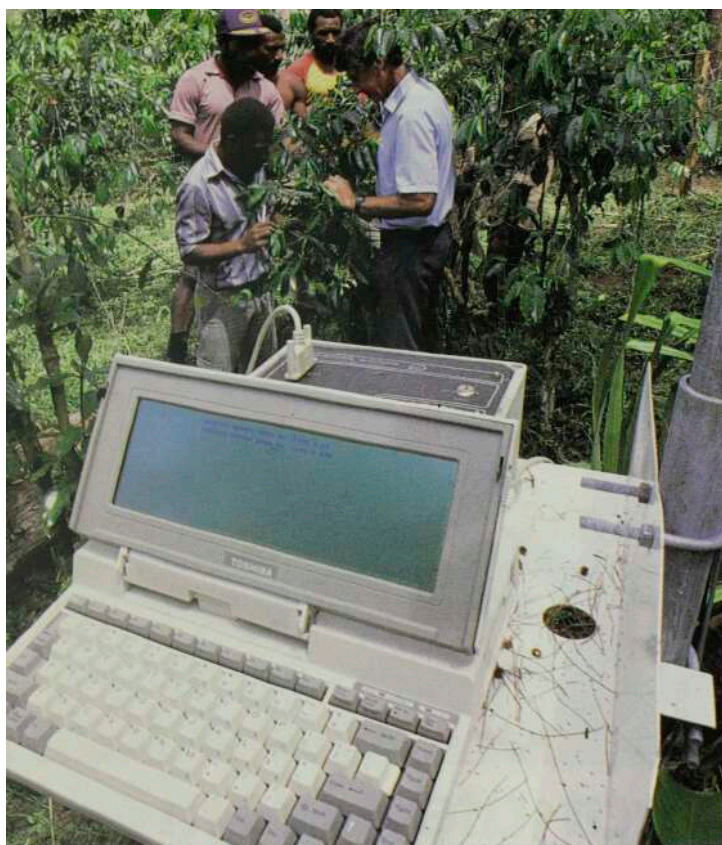
ral Development Project (SSRDP) to increase incomes and improve nutrition in Gumine and Karamui, the poorest districts in the Simbu valley — together with the International Fund for Agricultural Development (IFAD) and the PNG Government.

"The crop rotation periods in Gumine and Karamui have declined from about 15 years to two or three years," says Peter Kamis, the project co-ordinator. Himself a Highlander, Kamis has a clear understanding of the economic and social implications of over-population. "Yields are diminishing, disputes over land are increasing, and more and more people are leaving Simbu to look for work in the cities," he notes. The drift to the cities is particularly worrying for the PNG government. High unemployment in urban areas is causing law and order problems that are having an adverse effect on investment. Meanwhile, nutrition standards and incomes throughout Simbu are falling.

By focusing on the food sector, SSRDP hopes to reverse these trends. The introduction of new crops and farming methods and assistance in the marketing of produce are already showing considerable promise. Project manager Jonathan Hampshire attributes this success to the way in which the project is integrated into the existing management and administrative system in Simbu. "The project also supports an integrated set of components including administrative support, agriculture, health, literacy, training and capital works," Hampshire says. "The aim is to improve the existing system and leave those things that are sustainable."

Perhaps the most successful component of the project has been the vegetable production and marketing programme. Starting from a zero base, farmer groups are now selling an average of one tonne of vegetables a week. "The response from farmers and farmer groups has been very enthusiastic. Before the project started the opportunities for vegetable marketing were very scarce," Hampshire says.

PNG's fast-growing urban population is creating a strong demand for introduced fruit and vegetables such as lettuce, potatoes and carrots: but lack of continuity in quality and supply has meant that many buyers are turning to overseas suppliers. A recent Asian Development Bank study found that PNG imports more introduced fruit and vegetables than it produces, and that the consumption of introduced produce will likely grow at 5 to 7 per cent each year. All this is good news for Simbu farmers: "If Simbu can offer consistent quality and regular supply, there's little doubt buyers



will come to us," Hampshire says.

About 300 growers in the Gumine district have organised themselves into groups of 10 to 30 people for vegetable growing. To overcome marketing problems, SSRDP has set up buying centres and a cold storage plant and has provided three trucks for transporting the vegetables to a distribution depot. Eventually, an estimated 2500 smallholder farmers are expected to benefit from the scheme, injecting around K450,000 (\$A600,000) into the local economy.

A key component of the project has been the establishment of 10 Rural Extension Centres (RECs) in South Simbu, each equipped with a nursery where local farmers can purchase seeds and seedlings of vegetables, fruit trees and other cash crops such as coffee. According to Peter Kamis, the RECs are fulfilling an important need because it is too costly for farmers to establish their own nurseries. "Our main problem is overcoming the perception that because we are an aid programme, people can get what they want for free," he says. Regular field days allow farmers to purchase seeds and seedlings at subsidised prices and to see new crops such as cardamom, pyrethrum and soya beans being grown in demonstration gardens. Extension workers based at the RECs are responsible for teaching farmers about

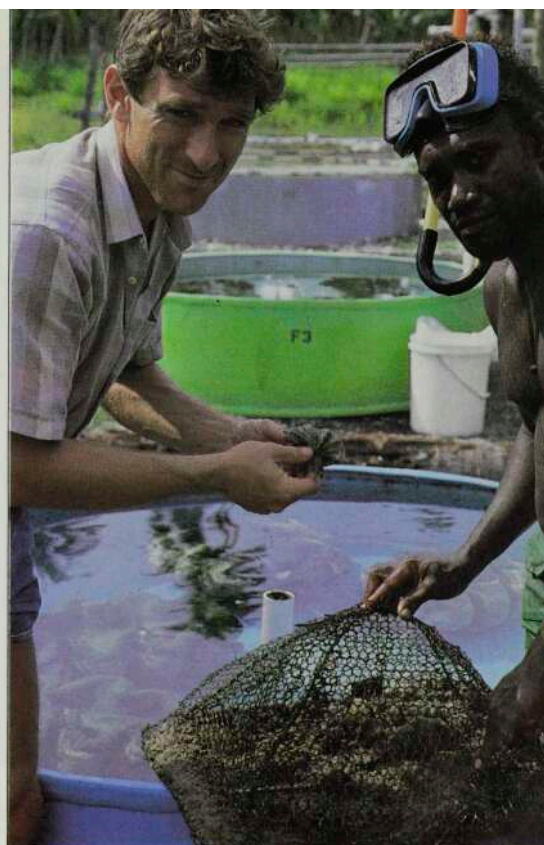
Above left: computer technology enables instant analysis of data on coffee rust. Above right: Hatchery manager Graham Usher and foreman John Suli; breeding giant clams to aid the Solomons economy.

new crops, mixed farming methods and better management techniques.

By introducing cash crops in addition to coffee, the project will also improve the situation of Simbu women, who are largely excluded from the cash benefits of coffee farming. Women are also being encouraged to participate in literacy programmes through a financial incentive system set up under the project.

Nurses and village health workers are also being recruited to improve health and nutrition in the region. About 20 houses for medical staff and a 12-bed hospital ward are being built, and an extended community health care programme in Karamui, offering vaccinations, prenatal and child health services and family planning advice, has also been undertaken.

The next major undertaking will be to establish a marketing depot in the provincial capital, Kundiawa, situated on the Highlands Highway and linked by air to Port Moresby and other major towns. A depot in Kundiawa would give growers better access to major markets and would allow continued development of smallholder vegetable



production in the area.

Few plant diseases have had as profound an impact on a country's drinking habits as coffee leaf rust. When the disease appeared in Ceylon (now Sri Lanka) late in the 19th century, it devastated the island's coffee industry. The result was that Ceylon went from being a coffee producer to a tea producer — and its main export market, England, changed from being a coffee-drinking to a tea-drinking nation.

The current outbreak of coffee leaf rust in Papua New Guinea may not change the region's coffee-drinking habits, but, if left uncontrolled, could have a devastating effect on the hundreds of thousands of smallholders who grow the majority of the crop.

Coffee is PNG's largest agricultural export commodity, accounting for around 14 per cent of the country's total export earnings. Grown mainly in the Highlands, coffee is also an important source of cash income for an estimated 260,000 smallholders; last financial year exports of coffee were worth around \$300 million.

However, the discovery of coffee leaf rust near Mount Hagen in 1986, and its rapid spread to other growing areas, has forced the industry to take drastic measures to curb the effects of the disease. It has been estimated that if no rehabilitation or rust control is carried out, the average level of pro-

CONTINUED PAGE 26

MARIANAS



R & D KELLER/NATIONAL PHOTOGRAPHIC INDEX OF AUSTRALIAN WILDLIFE

The snake that ate Guam

THE SCREAMS of the five-month-old baby brought her parents rushing to her room late on the night of March 3. They found their daughter with snakebite punctures on her arm: her mother lifted her from her cot while her father killed the 1.8-metre-long snake just as it was crawling into the cot where the girl's twin brother was sleeping.

While undergoing treatment at the hospital, the 5.7 kilogram girl suddenly stopped breathing and went into cardiac arrest. Emergency treatment revived her and she survived the harrowing ordeal, but nightmarish incidents such as this — the third recorded snake attack on a child recorded in Guam in the past two years — are threatening to become more frequent in the US territory.

Guam, riding a wave of economic expansion on bustling tourism and defence industries, has found itself bitten by a resilient reptile that is creating increasing environmental, economic and political problems for the commercial hub of Micronesia. The brown tree snake, *Boiga irregularis*, was introduced accidentally on to Guam 40 years ago from Melanesia and has since become a dominant predator on the lush 345-square-kilometre island, eating its way through the lizard, rodent and bird population with a bewildering ability to adapt to new environments.

Having depleted its natural food

David North reports on a feral animal that threatens wildlife — and people.

supply in the jungled interior of the island, the brown tree snake is now encroaching on the densely populated coastal areas, eating chicks, chicken eggs, small pets — even pet food — and entering houses.

Many Guamanians fear the next move will be to the pests that feed on human garbage, including that stored behind tourist restaurants and hotels. Some businesses in Guam's tourist area have resorted to using machete-armed security guards to check their buildings in the early evenings, killing any snakes they find.

With Guam passing the half-million mark in annual visitors last year and heading for one million in 1992, the effect one species of snake could have on the island's billion dollar tourism industry — which depends on image as well as substance — sends shivers through local leaders.

The devastation already left in the snake's wake includes tens of thousands of forest birds: nine species are already virtually extinct and several others are close to the brink. The list includes the Guam flycatcher, the rufous fantail, bridled white-eye, Micronesian honeyeater, Marianas fruit

dove, the island swiftlet, white-throated ground dove, the Guam broadbill and the Guam rail. Species found only in isolated pockets include the Marianas crow, reef heron, yellow bittern, Micronesian starling, brown noddie, white tern and the Philippine turtle dove.

There is a vital need to re-establish the island's ecological balance; evidence is mounting that the destruction of bird populations may lead to an increase in insect populations, with consequent impact on the island's agricultural industry (in particular the spread of plant diseases) as well as a potential impact on public health (a possible increase in the incidence of insect-spread disease).

The Governors of Hawaii, Guam, the Commonwealth of the Northern Marianas and American Samoa have called for a federally funded control and eradication programme to begin in 1990, and a federal inter-agency agreement has been developed by the Defence, Agriculture and Interior Departments to share the costs of the effort. Hawaiian leaders are especially concerned since the discovery of several snakes at Hickham Air Force base as well as Honolulu International Airport, apparently hitch-hiking to Hawaii on military and commercial flights from Guam.

US Fish and Wildlife Department herpetologist Dr Tom Fritts, who is urging that the project investigate

Opposite: the villain — the Brown tree snake. Below: Some of its victims — the Marianas Gallinule, Guam broadbill and bridled white-eye.



natural mortality controls on the snake in its natural range, find out how it flourished on Guam and evaluate a number of control and eradication techniques in the field, including traps, chemical and biological controls and sterility methods as well as encouraging professional snake hunters to reduce the populations and improved inspection and detection efforts at Guam's military and commercial air and sea ports.

The reptile also has caused several million dollars worth of damage to the island's power distribution system (as well as home and commercial appliances) in more than 500 'snake-induced outages' in the past 10 years. Climbing power poles after birds nesting in the cross-arms, the snake (which often grows to more than two metres in length) bridges the line and grounded wires, blowing transformers and creating local and island-wide power failures. The only consolation is that the snake which shorts out a power line never does so again.

A new and regionally significant aspect to the problem has surfaced over recent years as snakes have been discovered in Honolulu, Ponape, Kwajalein, Wake, Diego Garcia and possibly on Saipan.

Both tourism and Guam's other major industry, defence, have made the island an important air and sea link. The former drives Guam's growing importance in the north-south traffic, while the latter ties Guam to the east-west flow of the US Pacific base structure, increasing the brown tree snake's opportunities for off-island travel.

A large part of the problem in dealing with the species is that *Boiga irregularis* has been misunderstood, misidentified and its adaptability underestimated for at least 40 years. The reptile was probably introduced during World War II from a US Navy base on Manus Island, off Papua New Guinea. It found a paradise without the predators that had kept it in check in its natural range — eastern Indonesia, PNG, the Solomons and northern Australia.

Current estimates of numbers on Guam suggest there are "tens of thousands", perhaps as many as 8000 per square kilometre in particularly heavily infested areas of the island.

Snakes were first reported in the early 1950s, but their presence was not readily associated with a decline in bird population. During the day, brown tree snakes hide in tree holes, caves, rocks and other cool spots, foraging at night: so there were relatively few opportunities to observe, much less accurately identify, the new arrival. Moreover, the first prey the species hunted was the small lizard and rodent population, which caused it to be misidentified as the

Philippine rat snake. Until the late 1970s it was mistakenly viewed as a beneficial species rather than the ecological threat it has revealed itself to be.

By the late 1970s the drastic decline in the bird population was evident throughout the island. Pesticides or avian epidemic diseases were initially suspected, though larger species — especially birds of prey — were unaffected by the disaster. But by 1982, Julie Savidge, a University of Illinois graduate student, had begun to suspect the snake.

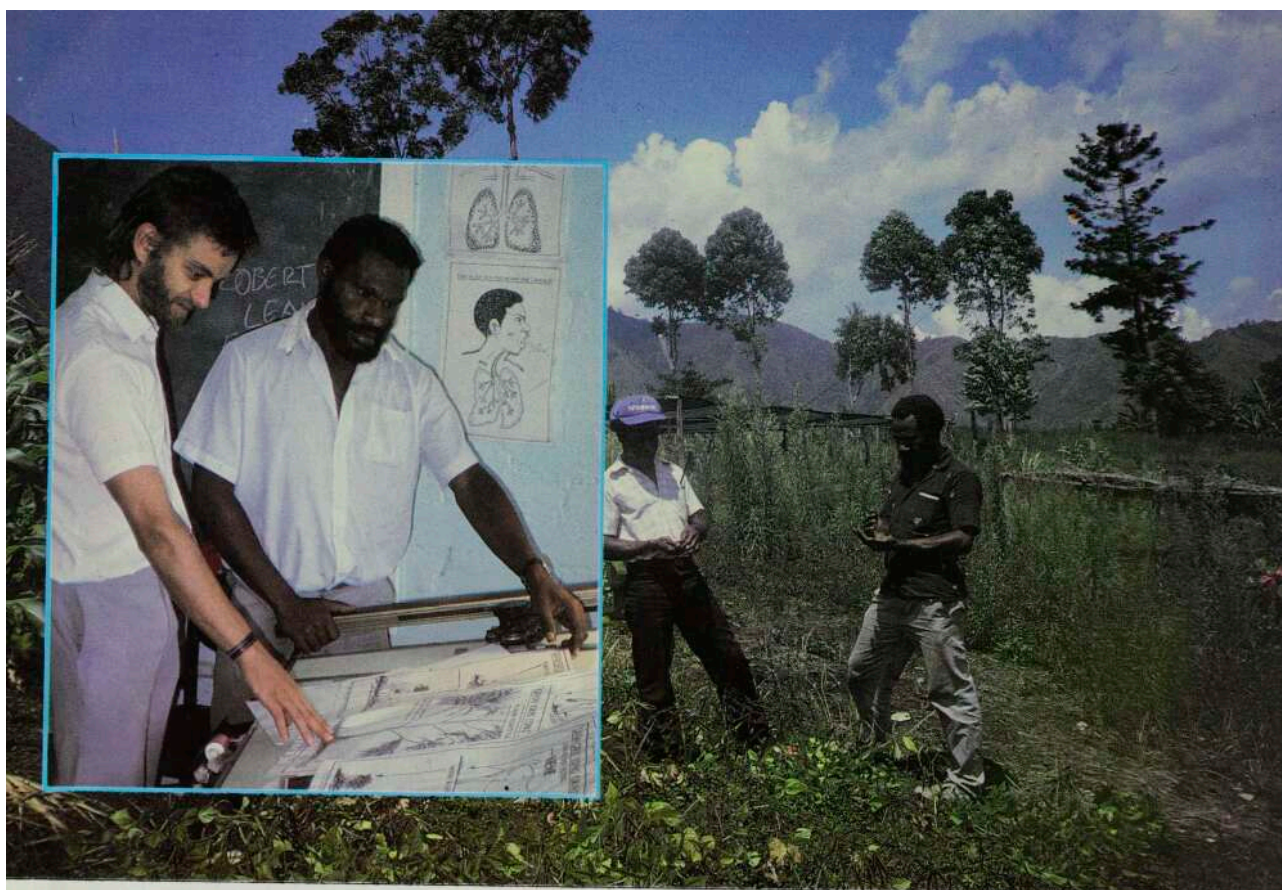
Paying a bounty for dead snakes, she consistently found birds and eggs in their digestive systems, and further studies proved beyond doubt that the snake infestation was the sole cause of the avian extinction.

In response to the disaster captive breeding programmes were initiated to rebuild the forest bird population, especially of species found only on Guam. The American association of Zoological Parks and Aquariums and the Guam Division of Aquatic and Wildlife Resources joined forces, capturing and moving birds from Guam to breeding programmes in the United States. Many populations, especially those of the Guam rail, show steady signs of increasing numbers.

So little is known about the snake that scientists are not even certain of its reproductive capacity: some suspect that, once fertilised, the female can store sperm and produce two or three clutches annually, each with up to 12 eggs, over several years. Theoretically, that would mean one gravid female snake might be able to introduce an entire and viable population to another island.

Moreover, though it was once thought the brown tree snake's venom was not deadly to humans, it may only be the species' inefficiency in injecting its toxin that accounts for no loss of human life so far on Guam. The brown tree snake is a member of the family Colubridae, or rear-fanged venomous land snakes: it has to immobilise its prey by wrapping its body around the victim before literally gnawing in order to deliver its venom. If enough venom is delivered it could be deadly to humans, and the effect of its bite on a five-month-old child's heart indicates that at the very least infants, the aged and the seriously ill are at significant risk.

While some Guamanians continue to hope — naively — that the brown tree snake population will die off now that the rodent, lizard and bird populations have been depleted, it has become increasingly clear that this highly adaptable snake has begun a new and potentially more devastating phase of its evolution on Guam — one that could have devastating political as well as ecological consequences. □



FROM PAGE 23

duction for a smallholder family would drop from around 100 kilograms a year to just 15kg. In 1987 the PNG Government requested assistance for dealing with the outbreak of coffee rust and AIDAB responded with \$A5 million to assist the Coffee Development Agency with a crop management, rust control and prevention programme and the Coffee Research Institute with research into rust-resistant varieties, spraying techniques and epidemiology.

Based in Goroka, the Coffee Development Agency (CDA), which is funded primarily by a levy imposed on coffee growers and an annual contribution from the National Government, is charged with implementing the Government's coffee rehabilitation and rust control programme. Shem Pake, CDA general manager, says that if coffee farmers do not learn how to deal with leaf rust the industry could be wiped out in five years. "That's the effect we have been warned about: if we weren't here to help, that's the sort of result coffee growers can expect."

In November last year the PNG Government announced it was considering disbanding the CDA, but was met with opposition from growers and some provincial governments. Shem Pake says the agency provides an efficient administrative structure for ex-

Inset: Simbu smallholder project manager Jonathan Hampshire and designer Koma Kuman. Main picture: Development technician Sorme Kola discusses progress with project co-ordinator Peter Kamis.

tension services to increase production and control the spread of coffee rust.

"Our objective here is to train farmers. Once the farmers learn to manage their coffee, there won't be any necessity to carry on administrative structures," he says. "It's my firm opinion that [our] impact has been extremely significant. The village people have been supporting us all the way."

Terry Quinlan, the project's team leader, at the CDA, says the logistics of planning and implementing a rehabilitation and rust control programme in PNG are enormous: coffee is grown under a variety of conditions; smallholder plantations are scattered, and often located in inaccessible areas.

"We base our extension staff in the middle of the coffee growing areas, concentrate on small groups responsive to new methods and make sure they succeed. Other farmers then follow their lead and the whole thing snowballs," Quinlan says.

Although improved management practices such as pruning, weeding, shade control and drainage can minimise the effect of leaf rust on yield, fungicide spraying remains the major

means of control. Determining the most suitable mix of rust control methods for the PNG environment is the task of the Coffee Research Institute, which works in close collaboration with extension workers from the CDA. A collaborative research programme has been established to link the Institute and Australian research bodies in the area of spray technology and the epidemiology of coffee rust.

Project manager Dr Jim Whan reports that the Institute is applying overseas findings on coffee rust to the PNG environment. "We've set up trial sites to find out how the coffee rust is developing under different weather conditions. We're also trying to develop economic thresholds by seeing how various levels of coffee rust relate to yield. Then we can start advising on whether spraying is economically viable."

Better management techniques have already slowed its spread, but Dr Whan warns that if left unchecked, coffee rust could lead to far-reaching social and economic problems. "Seventy to 80 per cent of the coffee produced in PNG is produced by smallholders. For a lot of these smallholders, that is their only source of cash income, so if that yield decreases to 50 per cent their cash income is reduced by 50 per cent . . . which has enormous social implications." □

**PACIFIC
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BUSINESS

REPORT



**EIGHT PAGES OF BUSINESS AND
FINANCIAL NEWS FROM
THROUGHOUT THE PACIFIC**

EDITED BY ROBIN BROMBY

Business Report

Marshall Islands joins the South Pacific

THE MARSHALL Islands has signalled its intention of reducing its dependence on trade ties with the United States by sending a trade mission to Fiji, Australia and New Zealand. It was also a sign that the gulf between the North and South Pacific that has existed for so long — because of colonial history — may be on the way to being bridged.

The mission's leader, Mr Edinal Jorkan of the recently formed division of trade and industry in the Marshall Islands' Ministry of Resources and Development, said the country's businessmen have been particularly impressed by the level of industrial development in Fiji, which showed what could be done with tax incentives.

Marshall Islands development is well behind many of the small island states of the Pacific, partly due to its relatively late Independence in 1979. Also, Pacific experts generally agree that the US did little during its occupation of the Marshall Islands to better the lot of its people (who now number 45,000, with one of the highest birth rates in the world). Copra products account for about 90 per cent of the country's exports, while about 80 per cent of imports originate in the US, most of the rest being in the form of cars from Japan.

The Marshalls' greatest economic opportunity is that it has free access to the Mainland American market, as do other former US territories. The problem for any investor would be to raise a workforce; life in the Marshalls is easy, food and clothing are abundant and there is little imperative to earn a living. In the Federated States of Micronesia (FSM) there are plans to build a clothing factory that would export to the US Mainland, and the government is talking of importing 700 Sri Lankan workers presumably because both skills and interest are lacking among local people.

The Marshall Islands has made some headway with new economic activities, though copra and the huge US base on Kwajalein atoll are the main sources of revenue. More than one million tonnes of shipping is now registered under the Marshalls flag, the latest being a 115,000-tonne, Hong Kong-owned dry bulk carrier that will be operated with a Marshall Islands crew. The government has also decided to sell Marshall Islands passports for \$US250,000, the idea being that buyers would enjoy the same rights to settle in the US as the Marshallese (though the US State De-

partment has said naturalised citizens of the Marshalls will have to live in the Islands for five years before they qualify for Mainland residency).

Most recently, the Government hired a company to study the country's economic zone for its mineral potential. President Amata Kabua said the Marshalls was looking to exploit its seabed resources following a recent report by the East-West Centre, Honolulu, that identified the area round the Marshalls as likely to contain deposits of manganese, the extraction and processing of which could be aided by the country's comparatively lax environmental laws and low taxes.

Most Marshallese who do take jobs find employment in the service sector — in supermarkets, shops and hotels. However, tourism is relatively undeveloped due to a combination of poor air communications and lack of top class hotel accommodation. There are connections with the US, but the cost of travel is high compared with other destinations. This is particularly true if one is trying to reach the Marshalls from the South Pacific, which involves obtaining a seat on the twice-weekly HS748 flight from Fiji via Tuvalu and Kiribati (in fact, the trade commission had to cool its heels in Sydney over Easter because it could not get seats on the flight out of Fiji until later in the week aboard the Airlines of the Marshall Islands aircraft).

The Marshall Islands is now seeking a loan of \$US40 million to upgrade its national airline, including the purchase of a DC8 to operate between Majuro, the capital, and Hawaii and Fiji. At the same time, the Kiribati airline Air Tungaru is believed to be planning the lease of a Boeing 737 to fly Honolulu/Christmas Islands/Tarawa/Nadi; the nation's communications have been hit hard by the grounding of Air Nauru, which formerly offered a service from Australia via Nauru. A 737 Kiribati and a DC8 to the Marshalls would be a massive improvement on the twice-weekly flight, from the Marshalls to Fiji, that also has to service Kiribati and Tuvalu.

Continental-Air Micronesia is also now flying a DC10 direct from Guam to Sydney, which will revolutionise air access to Micronesia from the south. Sea links are also being improved: Pacific Forum Line has now extended its Kiribati sailings to include Majuro.

The problem for any company wanting to set up in the Marshalls is that the Government has yet to pass a law regulating foreign investment: the desire to enjoy the benefits of development has not been matched by the drafting of guidelines.

With copra's future on a seemingly endless downward trend, the country has a genuine need to diversify. It has made few moves toward developing fishing other than setting up a local company: unlike the FSM, which has ordered three multi-million-dollar tuna boats from Australian shipyards (though three confiscated Japanese ships are tied up in port by political and regional rivalries in the FSM).

What the trade mission's visit does indicate is that the Marshall Islands is looking to downgrade its economic ties with the US; a typical post-colonial attitude. The most likely beneficiary is Fiji, whose production methods and costings impressed the Marshallese businessmen. They are expected to buy Fijian-manufactured clothing, food, small machinery and aluminium boats in the first instance.

The second phase will be to seek out industries that can be developed in the Marshall Islands. Mission leader Jorkan told *Pacific Islands Monthly* the members had been surprised at what they saw in Fiji and the trip was a useful familiarisation with the economies of Australia and New Zealand. Mr Jorkan said likely industries for the Marshalls could include garment factories and beer brewing.

Bird of Paradise may gain extra wings

AIR NIUGINI could be looking to further major expansion within 12 months by adding a second A310 Airbus to its fleet. It took delivery of its K54 million Airbus in mid-March and is considering leasing the second aircraft.

A second A310 would imply considerable route expansion to keep the aircraft fully utilised. The Airbus that went into service last month has a work load designed to produce enough income to cover its costs: twice weekly to Sydney via Brisbane, once weekly to Sydney direct, weekly from Port Moresby to Cairns, weekly to Manila and Hong Kong and twice weekly to Singapore.

A second aircraft would mean new routes, simply because Air Niugini could not expect to be able to double its traffic on existing routes. There has been speculation in aviation circles that the airline is looking at a direct Port Moresby/Hong Kong flight as well as services to Tokyo and Auckland. There could be increased services on the Singapore route as traffic has proved better than expected, with not only good business from Asian corporate travellers to Papua New

Guinea but the use by expatriates as the most direct route to Europe.

Air Niugini made its third consecutive profit in 1987, putting behind it the dismal results of the early 1980s. The airline is the only national carrier in the South Pacific that has maintained its independence . . . some part of which can be explained by the fact that it is the only regional carrier that has a substantial domestic network.

The airline made a profit of K3.54 million after tax last year on revenue of K83.96 million and carried just over half a million passengers. Air Niugini general manager Dieter Seefeld attributed the profit to increased traffic and better training of the company's workforce. The airline's internal traffic has increased as a result of its Weekender, Nambawan and Family concession rates, which have reductions of up to 50 per cent on normal fares. Traditionally, expatriate residents have gone overseas for vacations and have rarely travelled within Papua New Guinea; the new fares make that alternative more attractive and make it possible for PNG nationals to better afford air travel.

Since October 1987, Air Niugini has expanded its services rapidly, introducing its extension from Honiara to Port Vila; adding services to Sydney and Singapore to existing flights; re-introducing a service to Daru; adding Misima, Tabubil and Wapenamanda to its internal destinations; bringing in a non-stop flight between Kieta and Cairns and flights between Port Moresby and Townsville, with a Monday flight to Hong Kong the latest innovation. Air Niugini owns six F28 jets — the workhorses of its main domestic routes as well as some short-hop international runs such as to Cairns and Honiara — and two Dash 7 aircraft. The company also owns 51 per cent of Douglas Airways, a long-established third level airline in Papua New Guinea, and is looking at re-equipping Douglas (which currently uses a variety of aircraft to small aerodromes) and making it more of a feeder service to the national airline's domestic operations. During 1987, as part of K3 million staff training scheme, the airline also began a pilot training programme to accelerate the pace of localisation.

Fiji looks to mop up excess liquidity

FIJI'S GOVERNMENT, faced with an excess liquidity situation, is to use its Reserve Bank to mop up money for which the commercial banks can find no borrowers. The situation has been brought about by reduced business activity since the two military coups; the subsequent lack of confidence has meant people

are harbouring their savings and few companies are borrowing to expand, so commercial banks are left with money (estimated at 10 per cent of deposits) earning no interest.

The Government has accepted that the Reserve Bank's earnings will be down this year as a result of the scheme. The first issue of notes offered to the banks was made by the Reserve Bank of Fiji (RBF) in late March, for \$F10 million with issues for another \$30 million expected before the end of May. The notes will be issued in denominations of \$F200,000 over three months, one and two years.

The exercise is aimed at enabling the commercial banks and institutions such as the National Provident Fund and insurance companies to earn income on their funds. The interest to be paid has not been announced.

The RBF's statement said the excessive liquidity situation was undesirable because it threatened the stability of the banking system and the future effectiveness of Fiji's monetary policy.

Banks and insurance companies have sought permission to expatriate their funds to countries where they could be invested at good rates, but this was denied: an outrush of funds would seriously affect Fiji's current account balance, but with such high interest rates prevailing in Australia

and NZ the banks could have solved their problems immediately if offshore investment had been allowed.

Carving a slice of PNG's oil action

PACARC NIUGINI NL, the first Papua New Guinean company to list on the Australian stock exchange since Independence, is looking to farm out a share of its prospect and discussions are under way with a major oil company.

PacArc, whose home exchange is Brisbane and whose chairman is Peter Donigi, also currently president of the PNG Law Society, has raised \$A2.6 million from a fully subscribed public float of 10 million one Kina shares issued at \$A0.26; since listing on February 23, only small parcels of the company's shares have been traded within a band of 29c to 32c and, with shares issued to vendors, its total working capital is \$A7.8 million.

The company has a licence covering 4289 square kilometres within the Papuan Basin, within 70 km of the oil discovery at Iagifu and 15 km north of BP's discoveries at Hides. The region is believed to contain six trillion cubic feet of gas and 600 million barrels of liquid hydrocarbons.

The permit to PacArc's prospect is

CCOP/SOPAC

THE COMMITTEE FOR COORDINATION OF JOINT PROSPECTING FOR MINERAL RESOURCES IN THE SOUTH PACIFIC OFFSHORE AREAS

Director

Applications are invited for the position of Director of the Technical Secretariat of CCOP/SOPAC currently located in Suva, Fiji. The permanent location of the Technical Secretariat is under consideration.

CCOP/SOPAC is an inter-governmental organisation composed of twelve countries* of the South Pacific. Its constitution is currently under review. However, the primary objectives of the organisation are to survey the inshore, nearshore, and offshore areas of its member countries, to identify the marine mineral and other non-living resource potential within their Exclusive Economic Zones, and to assist members with their coastal development programmes by carrying out studies of the physical environment in coastal areas. The Technical Secretariat is the executive arm of CCOP/SOPAC.

The Director is responsible to the Committee for the overall management and operation of the Technical Secretariat of CCOP/SOPAC.

The post is restricted to nationals of the member countries of CCOP/SOPAC.

Applicants should have a high degree of ability and extensive experience in public relations and management, and a sound understanding of the Pacific Islands environment. They should be capable of developing effective relations with representatives of governments and scientific bodies.

The Committee will make the appointment during its Annual Session in October of 1989. The appointment will be for a three-year contract with effect from January 1990. Before the end of that term, when the position is re-advertised, the appointee will be eligible to apply for a further three-year contract, provided that he or she may not serve for more than six years consecutively. The remuneration and other terms and conditions of employment will be comparable to that of the chief executive of other South Pacific regional organisations, and as decided by the Committee.

All applications should be fully documented and include details of work experience and qualifications and the names of at least three referees. Applications, to be marked "Director Application", should be addressed to the Chairman of CCOP/SOPAC and should reach the following address by 31 July 1989:

CCOP/SOPAC Technical Secretariat
C/- Mineral Resources Department
Private Mail Bag
Suva, Fiji

* Member countries of CCOP/SOPAC are AUSTRALIA, COOK ISLANDS, FIJI, KIRIBATI, GUAM, NEW ZEALAND, PAPUA NEW GUINEA, SOLOMON ISLANDS, TONGA, TUVALU, VANUATU, WESTERN SAMOA.

held by Rigg Exploration Pty Ltd, which is now a totally owned subsidiary. Rigg applied for the licence area, known as PPL93, and sold it into PacArc (under the PNG Petroleum Act, licences are issued for six years after which the holder can apply only for half its prospect area to be renewed). PPL93 was previously held as part of BP's licence area and four companies applied for it in 1986 when the area became available, including Chevron Oil and Rigg Exploration.

The founder of Rigg Exploration and now general manager of PacArc Niugini, Mr Kevin Rigg, told *PIM* the company was fortunate there was a road almost to the planned first drill site and it was looking at extending the road: if it is not forced to employ helicopters the company could eliminate a third of its drilling cost.

Mineral and oil exploration will become cheaper, according to Kevin Rigg, as the increased level of activity means more in-country support becomes available. PacArc has also faced a common second barrier to prospecting in PNG: landowners. Mr Rigg says the company has taken particular care to encourage Southern Highlanders to become shareholders and, while most local holdings are small, PacArc will continue to encourage local participation: "It's good for us, and for our long-term plans," he says.

Major tourism boost for Vanuatu

VANUATU has re-entered the battle for the South Pacific tourist dollar. In recent weeks it has announced that it will buy a Boeing 727 from Australian Airlines, that Japan and Australia will pay for an upgrading of Port Vila's airport so it can take Airbus and 767 aircraft, and that \$A1.5 million will be spent in Australia to encourage tourists to decide on Vanuatu for their next vacation.

Vanuatu's tourist industry has taken a few knocks since the halcyon days of 1983-84, when almost 33,000 visitors holidayed in the country. In 1986-87 the figure was down to 9000, recovering to 14,000 in 1987-88. The Government is targeting 21,500 visitors this year; 27,000 next year.

The main cause of the downturn in visitor numbers was Cyclone Uma, which caused \$A200 million in damage, including the flattening of Iririki Hotel. Added to this have been continuing political problems which, while they have not had any effect on daily life in Vanuatu, have probably — at least partly because of negative coverage in metropolitan countries — frightened off some tourists.

The country will gain some control over its own tourism destiny with the



Vanuatu's Impressive bid for increased Australian (and, later this year, New Zealand) tourists includes major upgrading of facilities and air services. Ni-Vanuatu aircrews will introduce visitors to "the untouched paradise".



Australian beer baron Alan Bond is facing pressure not only from investigators of his media interests but from government moves to close tax haven loopholes that allowed him to pay less than one per cent tax.

purchase of a Boeing 727 from Australian Airlines. The three-engined jet, to be named *Spirit of Vanuatu*, will take over the weekly Sydney/Port Vila service now operated by Australian Airlines under the Air Vanuatu name and will in addition fly direct services to Melbourne and Auckland

— the latter destination, due in August, being particularly significant as there is currently no direct flight to Vanuatu from New Zealand, a major potential source of tourists.

Vanuatu has decided that its tourism industry needs a strong, stable and independent carrier; it remem-

bers when Ansett operated Air Vanuatu and then withdrew from the route because it was insufficiently profitable. The country's new jet will be leased back to Australian Airlines when it is not flying Air Vanuatu services; ground maintenance in Australia will be undertaken by the government-owned Australian airline and there will be a new ground maintenance unit in Port Vila.

Just as significant is the upgrading of Bauerfield Airport at Port Vila. The runway will be strengthened so it can take the weight of fully laden Boeing 767 and Airbus A300 planes: the runway can hold presently accommodate the 727, which carries 144 people, while other airlines operate 737, 727 or F28 jets with seating capacities between 80 and 145. The Airbus and 767 both have 230-plus seats and are widely used as medium-distance international aircraft.

It is expected that Air New Zealand will start a service to Port Vila later this year, and will want to fly its 767s on the route. Other airlines serving Bauerfield are Ansett (Sydney, via Brisbane), Air Caledonie (Noumea, with connections to Sydney and Brisbane), Air Niugini (Port Moresby, via Honiara) and Air Pacific (between Nadi and Brisbane). But on the service from Australia and New Zealand Vanuatu will be looking to higher-capacity aircraft to deliver the number of tourists on which it is counting.

Australia and Japan will jointly spend \$A13 million to strengthen the runway at Bauerfield, and will build a new international terminal by 1993. The upgrading of the runway will cost \$A6 million, which will include strengthening and a 600-metre extension paid for under Australian aid programmes. The Japanese contribution will be to extend the tarmac apron, build a new two-level international terminal and transform the existing building into a new domestic terminal. The new buildings are in anticipation of expanded tourist traffic.

More immediately, the Australian public is to be the target of a \$A1.5 million advertising campaign, which includes new 30-second television advertisements and a range of colour advertisements in newspaper magazines and high circulation women's magazines. The theme of the television spots is 'Vanuatu — The Untouched Paradise', and will go to air just before Australian school holiday periods in 1989.

South Pacific tax havens under scrutiny

SOUTH PACIFIC tax havens are likely to come under increasing pressure from Australian tax authorities with continuing disclosures of

how major companies are using offshore subsidiaries to minimise corporate tax. Attention has been focussed on Bond Corporation, the brewing giant headquartered in Western Australia, which last year channelled about 90 per cent of its consolidated profits through Cook Island companies while its Australian operations actually recorded a loss.

Then followed the news that Australian Airlines, the government-owned national carrier, also maintained companies in the Cook Islands, though the airline has denied these were used for tax minimisation. It has now been estimated that as many as half of Australia's top 200 companies use tax havens around the world.

The major nations are attempting to close tax loopholes that allow the tax havens to exist, while the same time the havens themselves proliferate. *Pacific Islands Monthly* recently reported that Western Samoa was considering opening a finance centre, while it now seems Kiribati is about to join the tanks. The latest development plan issued from Tarawa includes the setting up of a finance centre in the small central Pacific republic.

Australia is bound to follow in the footsteps of such countries as New Zealand, Canada, France, West Germany, Britain, the United States and Denmark in taxing on an accrual basis — that is, assessing tax whether or not the money has been brought back into the country where the corporation is headquartered. Had such legislation existed in Australia, the Government could have received tax on all the profits declared in the Cook Islands regardless of how those profits were dispersed. Just how much money goes through the tax havens is unknown, but the earnings of the Bond subsidiaries there give at least a glimpse: Lawson Holdings earned \$A80 million, Sphinx Holdings \$74 million, Bancroft Ltd \$32 million.

Australian plans new laws to block the use of tax haven schemes to come into effect on July 1, 1990 — though there is as yet no guarantee that deadline will be met; it has already been postponed from an initial date of July 1989. The Australian Government has argued that the legislation has proved more difficult to frame than was originally expected.

For trading companies the tax haven is a most useful tool. A firm can buy a consignment of goods in, say, Japan, then invoice them to a company in the Cook Islands . . . which in turn charges the Australian parent a higher than normal price in its turn, thus depositing most of the profit in the tax haven. The name of the game is re-invoicing. Australian companies pay a rate of 39 per cent corporate tax on profits, but Bond Corporation en-

ded up paying less than one cent in the dollar. Another method to reduce tax in a high-rate country is for the subsidiary in the tax haven to bill the parent for services at whatever rate will effectively transfer profit.

Tax havens have not had all that much attention in the Australian media. But they came into the news with a national television programme that examined the operations of Bond Corporation and how it used the tax havens to minimise its Australian taxation bill. This is bound to lead to pressure on the Government not to delay its anti-haven laws any further.

Apart from revenue losses, the greatest worry about the finance centres is their susceptibility to criminal activity. Laws in Tonga, Vanuatu, Cook Islands, Nauru and the Marshall Islands protect all offshore account holders with punitive secrecy provisions. Even the number of companies operating through the havens is not known for sure, though some figures have emerged. Vanuatu is believed to have more than 1200 companies registered at its financial centre (the ANZ Bank in Port Vila has been reported as holding 600 foreign currency accounts) and the Cook Islands has 1600 companies.

One particular product of the tax havens is the so-called shell bank, a new form of dummy company. Shell banks have been known to sell worthless certificates of deposits — which is basically fraud, because the certificates will never be redeemed. The fees for shell banks are considerably higher than for personal trust accounts, and form an important source of income for small countries. Even the Marshall Islands is in on the act, and while it is difficult to estimate the result of issuing banking licences in terms of that country's financial reputation, the long-term effect cannot be favourable.

This is not to say that all, or even most, of the companies registered in tax havens or financial centres are engaged in illegal activities; but secrecy laws make it impossible to know just how great the problem is.

Island governments for their part have seen a finance centre as an important source of overseas funds. They have a local spin-off in terms of employment — the Vanuatu centre, for example, employs 400 people — but when these countries have few other sources of revenue (Vanuatu's trade deficit was \$US50 million in 1987) and face a future of aid dependency, the lure of risk-free income from operating a tax haven and shell bank centre is difficult to resist.

There is no question, however, that pressure will mount on these small Pacific nations, both in terms of ending tax minimisation and keeping out criminal activities.

□ CANADIAN FISHERIES AID

CANADA is to provide assistance to projects being undertaken by the Forum Fisheries Agency, based on Honiara. Canada's International Centre for Ocean Development will provide about \$A400,000 to help small-scale fishery projects being developed in member countries, a pilot scheme for placing observers on foreign fishing vessels and for the training of Pacific islanders in specialised fishing methods.

□ COCOA ASSISTANCE URGED

There is growing concern in Papua New Guinea about the plight of the cocoa industry. The K6 million in the Cocoa Stabilisation Fund is expected to be exhausted by the end of April, and cocoa prices have halved since early 1987, under pressure since the early 1980s due to the lagged response of world production to the high real prices in the late 1970s.

PNG exports were also hit in 1987 as a result of a drought.

A further slump in prices is expected in April unless there is a major assistance intervention by the Government. It is reported that many small holders growing cocoa are barely surviving financially, with both the commercial banks and the Government-owned Agriculture Bank pressing many growers for loan repayments. Growers receive K1500 a tonne with the bounty from the stabilisation fund, but would get only K900 if the fund is exhausted.

Large cocoa-producing companies in East New Britain, including New Guinea Islands Produce Company, have already threatened mass lay-offs and it has been estimated that the Cocoa Stabilisation Fund would need a possible total of K15 million in 1989 if it were to meet its obligations to growers.

□ APIA PORT DEVELOPMENT

JAPAN is to provide funds so Western Samoa can upgrade the main wharf at Matautu, as well as work to improve facilities at two other ports and to provide a new ferry.

□ PNG'S RICE BILL UP

PAPUA New Guinea's rice imports are up, despite continuing efforts to increase local production. It has been estimated that farms so far established will produce 309 tonnes of rice, but the imports — mostly from Australia — totalled 17,430 tonnes a year, which cost PNG K26 million. The worrying trend is for the imported quantity to grow each year.

The Government has announced incentives to farmers growing rice, in-

NZ to provide Niue air service

NEW ZEALAND'S Foreign Minister, Russell Marshall, has told the Government of Niue that Wellington wants its aid money spent more productively, following a recent visit to the island. Mr Marshall flew to Niue to talk with Premier Sir Robert Rex about the almost \$NZ10 million given in aid last year (close to \$5000 per head of population) and to discuss possibilities for a new airlink following the grounding of Air Nauru.

The New Zealand concern is that Niue's population remains stable; the island is still home to 2000 people, but about 10,000 Niueans are living in New Zealand and Niue loses approximately 10 per cent of its population each year through emigration. It is feared that the absence of an air link will encourage more people to live as the shortage of imported goods grows.

At the moment, Air Samoa is providing a temporary service from Pago Pago but the aircraft does not have adequate cargo capacity and the island needs a more direct link with New Zealand, both for passengers and export commodities. A New Zealand aviation consultant to Wellington flew to the island with Mr Marshall's party, and is expected to report on how the air link can be re-established.

Air Nauru, even if its passenger certification is restored, may not wish to reopen services to Niue; they can hardly have been profitable, and Nauru is facing a tough economic future in which it cannot afford the luxury of an international airline flying low-density routes.

The problem for the aviation consultant is that few other airlines are likely to be interested — small aircraft cannot carry the quantity of both imports and exports the islanders need carried by air, while the existing strip is too short to accommodate a fully laden Boeing 737, the smallest feasible aircraft in terms of freight and passenger capacity.

Air New Zealand is now owned by a Brierley Investment-Qantas-Japan Air Lines — American Airlines consortium and will be assessing its routes on totally commercial grounds, while Ansett has pulled out of services to Vanuatu and between the Cook Islands and Auckland (routes that offer far greater passenger potential) on the grounds that they were uneconomic.

The other essential element in keeping people on Niue is that sufficient jobs be created for them: the Government's answer to date has been to swell the public service to the stage where three people are employed for every job. Plumbing, health and dental services are all free of charge and the Government has been known to lend equipment to private users for nothing, so

there is neither opportunity nor incentive for private companies to establish themselves.

New Zealand is donating \$NZ33 million to Niue over three years to fund the Niue Concerted Action Plan, and the minister's visit came soon after the New Zealand Audit Office made public its concern about how aid money is spent on the island, especially in regard to preferential treatment given by Premier Rex over business loans.

A government review team has remained on the island to examine how the \$10 million given so far has been spent, and officials say the main problem on Niue is a "boom-and-bust" mentality in which agricultural production is neglected when prices drop. There is no long-term market view: a coconut creaming factory, for example, has been closed for several months. There is considerable scope to increase production of agricultural goods, particularly taro and tropical fruit, but the air service to New Zealand will need to be restored before that can happen.

Mr Marshall found there are individuals and groups wanting to set up businesses, but they have not been able to obtain the loans that were part of the New Zealand aid scheme. There are also people who want to develop the island's tourist industry . . . but this again hinges on regular air services.

New Zealand has also urged that Niue speed up its system of land title review: until all ownership is fully identified, plans to free land for freehold title and commercial use cannot go ahead.

While Mr Marshall has been diplomatic about his visit, there is no question that the government is concerned about the aid money's fate. "When the business community spoke to me . . . they made a bid for some assistance for the growers' co-operative, for example, and I said there was enough money coming from New Zealand as it is," he says.

"There is a tendency, I think, to do things very inexpensively. They have 4 per cent [interest on] housing loans and it's easier to get a loan if you work for the Government than if you work for the private sector.

"There is a tendency to let people have government services and equipment for nothing . . . Now, I made it very plain that from New Zealand's point of view, that's nothing but freeloading on the system."

Mr Marshall told *Pacific Islands Monthly* that one option may be to extend the runway on Niue, and to have an aircraft calling there as a stopover on a more major route; perhaps even once a fortnight. "I think they've given up waiting for Air Nauru to come back to the party — that's a naive belief. □

cluding a long-term plan to replace imports, with provincial governments being given the task of distributing rice seeds. Just over 1000 farmers established rice projects in 1988.

□ TONGA-US SHIPPING SERVICE

COLUMBUS Line has opened a new direct shipping service between Tonga and the west coast of the United States. The new service will give Tongans access to the American market and Tongan seamen, trained by a joint Columbus-Tonga-West German scheme, will man the vessel *Columbus Canada*, registered in Tonga.

□ NEW COPRA MILL PLANNED

A NEW copra crushing mill is to be built at Madang, PNG, with 50 tons of copra to be crushed each day. Initially the plant will produce only crude coconut oil, which has a ready market in India, Pakistan and Bangladesh, and will operate on a diesel engine.

PNG Copra Marketing Board chairman Sir John Guise has called on interested companies to lodge applications; overseas companies can apply for the mill project as well as Papua New Guinean enterprises. Sir John

says it is important to ensure that the copra industry is still an important feature of the economy.

Plunging world prices hit Papua New Guinea's copra exports last year, wiping an estimated K3 million of receipts according to the PNG copra Marketing Board. Production last year was down 9 per cent on 1987, the Board's report says.

□ CRAFT BODY DISBANDED

WESTERN Samoa's Handicraft Corporation, established in 1965 to improve the quality of the industry's products, is to be closed after losing money for many years.

The corporation has grown increasingly irrelevant as many handicraft producers deal direct with hotels and shops rather than through the Government agency.

□ HAWAII'S VISITORS INCREASE

FIGURES show that Hawaii ended 1988 with strong tourist arrival figures and indications of a good start in 1989. The Hawaii Visitors Bureau (HVB) has estimated total tourism spending for 1988 of \$US8.3 billion, up 25.8 per cent on the previous year.

The \$1.7 billion increase is greater in size than most other industries' total contribution to the state's economy.

Preliminary estimates of Japanese visitor spending have been increased from \$400 to \$500 per person as the earlier estimates are now regarded as too conservative. Even spending by tourists from the US Mainland appears to be higher than expected.

□ MARSHALLS WASTE DEAL

A PLAN by a US company to dump non-toxic waste in the Marshall Islands now seems set to proceed after the country's parliament approved the intention of High Chief Amatu Kabua to begin negotiations with Admiralty Pacific Inc. The company wants to ship 10 per cent of the household garbage generated on the West Coast of the US and create landfills in the Marshall Islands. It will earn the republic about \$US50 million a year.

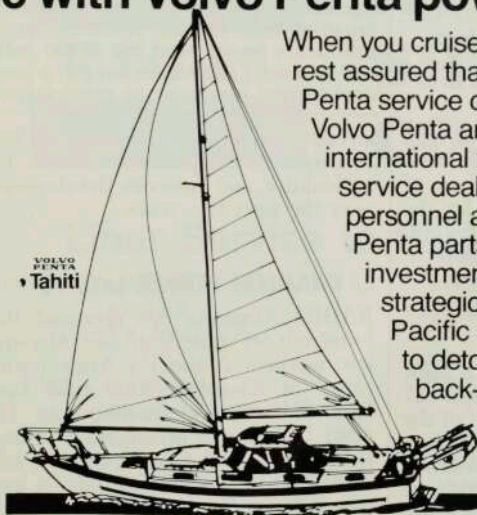
□ MELBOURNE-NADI SERVICE

AIR Pacific has introduced a new weekly direct flight from Melbourne to Nadi, designed to increase passenger traffic from Victoria.

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airline flying under its own colours in Fiji from Melbourne, Sydney and Brisbane, and will be supporting the service with advertising campaigns in April and July.

□ VANUATU FOREST AGREEMENT

TIEN Bou Enterprises of Taiwan has entered into an agreement with the Government of Vanuatu to log rain-forests on the island of Malekula, the second largest in the Vanuatu group at 88km in length and 24km at its widest point.

□ FIJI WOODCHIP PLAN

A LAUTOKA company has signed an agreement to supply \$F56 million worth of woodchips to Japan from its pine plantations over five years. Tropik Wood Industries Ltd believes the deal signifies that Japan has accepted the country as a credible long-term area of investment. The agreement was signed with the Japanese firm of C Itoh & Co, though the chips will be shipped to three other Japanese companies, including Oji Paper, Japan's largest paper manufacturer.

A preliminary schedule shows Tropik will export 11,000 tonnes by May, the monthly shipments rising to 20,000 tonnes by November. Under the terms of the contract the Fiji company is committed to supplying a minimum 850,000 tonnes of woodchips to the Japanese pulp and paper industry. Earlier this year, Tropik Wood installed a \$F1.5 million sweep saw line to increase the recovery rate in processing swept or curved logs.

□ TAIWAN LOANS TO FIJI

FIJI is about to raise its first-ever loan in Taiwan, with a \$US2 million advance from the Export-Import Bank of China. The money will be used for the purchase of motor vehicles and communications equipment for government departments.

□ PNG SEEKS FISHING AID

THE Government of Papua New Guinea has asked Japan to fund K7 million needed for development of the nation's fishing industry. The cabinet approved the expenditure but learned that there were no funds available, so Fisheries and Marine Resources Minister Allan Ebu sought the aid during a recent visit to Tokyo.

Mr Ebu proposed to make the money available through commercial banks under relaxed guidelines to 100 per cent nationally owned companies already involved in fishing or prawning, and which have sound and proven management. Japan has



While mechanisation has yet to change the way in which sugar cane is harvested in Fiji, economies of scale dictate that the era of small, local crushing mills is past. World prices for sugar have not improved as producers hoped, and the \$F400 million establishment cost of even a small mill makes it imperative for Fiji's largest domestic industry to make the same cost-cutting measures as other sugar-growing nations.

already made available K17 million through the Agriculture Bank for agriculture and fisheries development over the next five years.

□ KWAJALEIN WORKER LAYOFFS

RADIO Australia has reported that hundreds of American and Marshallese workers at the US Army testing range of Kwajalein Atoll have been laid off because of funding cuts. The army base is one of the main sources for the Marshall Islands and the cuts — of \$US15 million in funds — have cost 250 expatriate and 150 Marshallese their jobs. The remaining 540 Marshallese still on the payroll have been switched to shorter working weeks and job sharing.

□ HAWAII AIRPORT EXPANSION

MORE than 30.5 million passengers will pass through Hawaii's airports in

1989; and the number is expected to double within 25 years. The Hawaii State Department of Transportation (DOT) has embarked on a programme of renovation and expansion of the state-run airports.

DOT is bringing back the 'old Hawaii days' at Honolulu International Airport, complete with strolling musicians and hula dancers. The department is now in the process of selecting a new site for a \$US130 million international arrivals building, which will cover 29,750 square metres (320,000 square feet) and will centralise immigrations, customs and public health services on one level. DOT is also planning to install 'people-movers' (moving footways) at Honolulu International to link the various terminals.

The old inter-island terminal has been torn down to make way for a multi-storey structure, to cost \$100 million, with the airlines operating out of a temporary building.

Work is already underway on a new

\$41 million terminal complex at Kahului Airport on the island of Maui, the state's second busiest airport, as well as a multi-lane access road to the airport. A 1370-metre extension is planned at Keahole Airport, at Kona on Hawaii Island, while Lihue Airport on Kauai recently saw a new terminal opened.

□ EAST SEPIK RUBBER PLANS

EAST Sepik Provincial Government is seeking funds to expand rubber production, with plans to produce about K3 million worth of rubber a year. A rubber factory has already been established at Gavien under the East Sepik Rural Development project, but about K300,000 is needed to fund the buying of the rubber from the growers; funds the provincial government is seeking from Port Moresby.

□ SMALL MILLS OUT

THE Fiji Government has shelved plans for small sugar mills around the country after a study concluded that such operations would not be economically viable in view of the huge capital cost involved. The cabinet noted that Australia, Hawaii, and the Philippines had all been moving away from using smaller mills.

A small mill costs up to \$F400 million, to establish, and current prices on the world market are not attractive. Furthermore, existing mill capacity has been fully used in only three of the past eight years.

□ VANUATU TRADE DEFICIT GROWS

VANUATU'S trade shortfall in 1987 amounted to almost \$US51.5 million, an increase of \$US13.5 million on the 1986 result. The major items in the \$US70 million import bill were machines and transport equipment, food and live animals. Inflation for the year to September 1988 averaged 8.8 per cent.

□ PNG FORESTS FOR NATIONALS

THE Papua New Guinea Government is moving to increase local processing of the country's timber reserves, while at the time heading off increased foreign exploitation. Already ebony, teak, balsa and conifer logs are banned for export and rosewood, pencil cedar, walnut, blackbean and phanconella will be added to this list. By 1991 no new log export permits will be issued.

The Government became concerned when exports of processed timber dropped from 36,000 cubic metres in 1983 to just 4000 cubic metres last year. Forests Minister Karl Stack has proposed legislation that will promote reforestation, increase the log export levy and provide new processing requirements. The plan is to switch from log export to processing within the country.

Yet in the same week as the minister announced the new policy, the *Post-Courier* in Port Moresby revealed that a foreign company, incorporated for only three months, had been granted exclusive negotiation rights for the giant Arawe timber tract in West New Britain. Cakara Alam (PNG) Ltd has been approved as the potential developer of 196,000 hectares.

□ VANUATU FISH FOR EXPORT

VANUATU is to seek a market for its chilled fish in Australia. The trial will be organised by the Government-owned Port Vila Fisheries, and shipments of deep-water snapper will be sent to the Sydney Fish Market.

□ TEXAS IN PNG

NIUGINI Mining Ltd has taken the Texas-based Battle Mountain Gold Company as controlling partner in order to find enough capital to develop its stake in the Lihir goldfield in New Ireland Province. Battle Mountain will pay \$A100 million for a 32 per cent stake in the company, which in turn has a 20 per cent share in the giant Lihir gold deposit.

Niugini Mining revealed in January that it was having talks with several companies to raise funds for work at Lihir, which has an estimated 42.7 million ounces of gold. The other major share will be held by Rio Tinto-

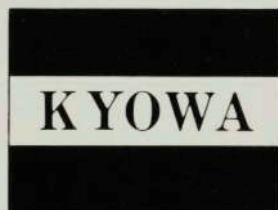
Zinc Corporation after a buy-out of BP Minerals' interest.

Battle Mountain has indicated it may seek a further equity increase in Niugini Mining, either by market or private transaction, though it is understood the Texas company has agreed not to go beyond 75 per cent for five years. The American company already operates one of the largest gold mines in the United States, at the Fortitude pit in Nevada, and has also acquired a one-third share of a Peruvian gold mining company.

Meanwhile, Niugini Mining has posted a K7.5 million loss for the six months to December 31 compared with K1.3 million for the same period the previous year. It wrote off K3.7 million from its oil exploration activities and now plans to farm out its exploration interests in order to limit the company's exposure. But its K2.5 million revenue signals its emergence as a gold producer.

□ AMERICAN SAMOA DEFICIT

THE Government of American Samoa has recorded a budget deficit of \$US1.2 million for the quarter to December 31, signalling a shortfall for the year close to \$5 million. However, the quarter may be a typical as it included elections, which meant unbudgeted personnel hiring by the outgoing government and a blow-out in Election Office spending. □



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TUVALU

Inter-island shipping's new face

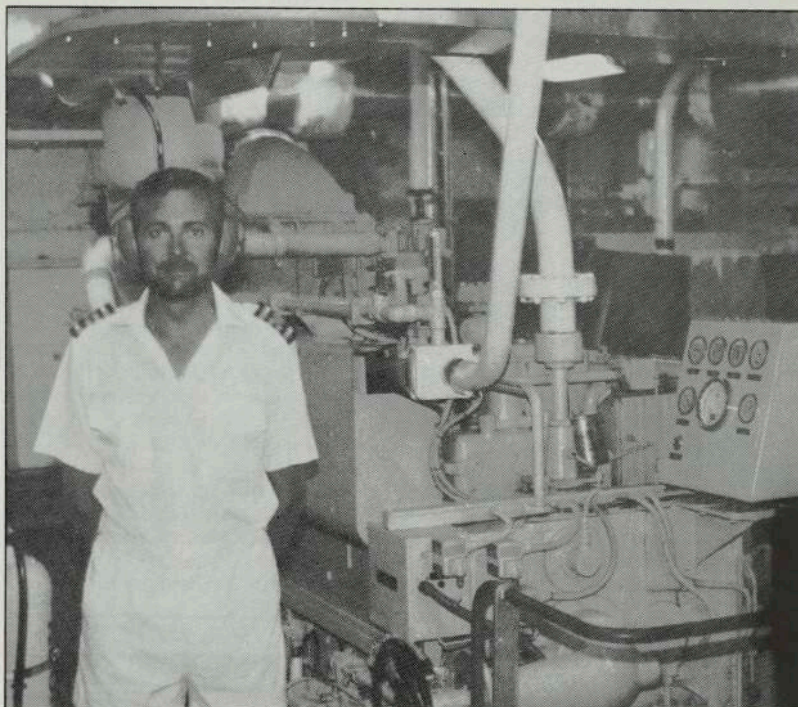
David Haden sets sail on Nivaga II, Tuvalu's brand-new government vessel, and finds that Pacific ships retain their romance — but with improved comfort, cleanliness and service.

MANY OF THE Pacific's island nations still rely heavily on shipping for regular domestic and international communications, transport and trade links — for without ships, the majority would simply be completely isolated not only from the rest of their island group but from the world 'beyond the reef'. Aviation may have brought some countries closer together and cut travelling times dramatically, but land is a precious commodity on small islands . . . and airstrips are expensive.

One of the highlights of last year's tenth anniversary of Independence celebrations in Tuvalu was the arrival of the republic's new inter-island ferry and cargo vessel, the *Nivaga II*. Built by Richards of Lowestoft in the UK with British aid funds, she was designed specifically for inter-island trading and services the eight outer islands of Tuvalu on a regular basis as well as providing a service to Suva every two months. She has a gross tonnage of 1044 tonnes and is 58 metres in length, with a service speed of 10 knots and a maximum of 12 for emergency sailing. Her single hold can carry 350 tonnes of cargo, plus 20 tonnes of refrigerated cargo in two containers on deck — almost double her predecessor's capacity.

I joined *Nivaga II* at the invitation of Mike Keating, Transport Systems Manager for Tuvalu's Ministry of Works and Communications, for a cruise to the islands of Nukulaelae and Niulakita. The vessel was a hive of activity an hour before her scheduled departure from Funafuti's deep sea wharf, with cargo being loaded, passengers embarking and the inevitable crowd of onlookers farewelling friends, sending last-minute parcels to the outer islands . . . or just there to be a part of the excitement.

With the ship's two workboats secured to the hatch cover and the last of the cargo — and passengers — safely stowed, *Nivaga II* slipped her moorings soon after seven o'clock and headed for the open sea. Once past the reef the vessel began to roll in the moderate swell, and I was surprised to see how many of the locals were soon



Above: Nivaga II's chief engineer, David Nesbitt, in his gleaming engine room. Right: the new inter-island vessel at her home port, Funafuti.

prostrate with seasickness: I'd always assumed that the sea was a central part of islands life and that the islanders would be at home on the waves, but it seems that while they are perfectly comfortable in canoes or small boats, the motion of a larger vessel is enough to make them very ill indeed.

Within a couple of hours, however, most of the deck passengers had subsided into sleep, and only the occasional groan from the truly seasick could be heard. I decided to conduct some research into the comfort of my bunk and found my neat and clean air-conditioned cabin so pleasant that I drifted into a nap.

I was woken exactly at noon by the saloon meal bell and was soon enjoying a well prepared three-course meal: the two young saloon stewards, recent graduates of the Tuvalu Maritime Training School on Amatuku Island, watched like hawks as I finished my meal and it was a near race to see who picked up my empty plate!

David Nesbitt, chief engineer on *Nivaga II*, joined me at my table and offered to show me over the vessel. Naturally, our tour began with the engine room: complete with computer console in an air-conditioned control room, David's pride and joy is spotless and efficient — typical of the care that has gone into every aspect of the ship's design and construction.

Likewise, the crew's quarters are comfortable and clean: many of the predominantly young crewmen are fresh from Tuvalu's Maritime Training School and *Nivaga II* is their first ship — an opportunity for them to put into practice the skills they have acquired at school, and a practical training ground for work on foreign-owned deep sea vessels such as bulk carriers and container ships.

Nivaga II's bridge is equipped with the latest technology: two radars, a SATNAV satellite navigation system and autopilot linked to a gyrocompass. Communications systems include VHF and HF radio, providing reliable 24-hour contact with shore installations. The new vessel's schedule and communications facilities give her the flexibility to respond to emergencies: 'slack' time is built into her sailing schedule so she can attend to search-and-rescue or medical emergencies without losing significant amounts of normal operating time.

Passenger accommodation consists of First class (four cabins with private facilities) and Second class (eight cabins with shared facilities). Each First and Second class cabin sleeps two; the after deck accommodates 120 passengers, who supply their own sleeping mats and food.

By mid-afternoon Nukulaelae atoll was visible on the horizon and the crew was making ready for our

arrival; the port gangway was rigged and the workboats unlashd to ferry passengers and cargo ashore. Right on schedule we hove to off Nukulaelae and a workboat was lowered over the starboard side. Getting the passengers into the workboat proved to be a dramatic exercise: a heavy swell was running and the combination of the ship's roll with the workboat's up-and-down movement increased the risk of a still-seasick passenger falling into the sea. Fortunately, no-one was so unlucky and with a full load of cargo and passengers and cargo, the workboat was soon surging through the entrance to Nukulaelae lagoon.

However, we were no sooner through the entrance than we ran aground — the tide was ebbing and we were forced to wade ashore through the warm and exceptionally clear waters of the lagoon. Nukulaelae is an extremely narrow atoll, with huge *pulaka* (taro) pits along the centre of the island; pigs are housed in small sties on the embankments created by the excavations.

The island has no motor vehicles apart from a tractor and trailer; some villagers own bicycles, but it's possible to stroll from one end of the island to the other in 35 minutes. Most of the villagers live off the land and the sea, supplementing their basic diet of taro, coconuts and fish with pigs and chickens. Only a few of Nukulaelae's inhabitants are wage-earners but they are far from highly paid.

The tide returned shortly before sunset, so I went back to the ship with the first workboat . . . to be told that we were anchoring off Nukulaelae for the night. I was secretly relieved to be back on board, as the island's population of flies had been even more welcoming than its villagers!

I was woken early next morning by the sound of the ship's derrick at work; looking out of the porthole I could see cargo being loaded and passengers waiting to board, but the swell was still running and the workboat almost crashed into the ship's side on occasion. However, the crew was obviously experienced in such difficult operations and everyone was soon on board . . . including a loudly protesting pig that squealed even louder when it was tied by one leg to the railing near the forecabin.

Niulakita atoll lies seven hours' sailing to the south of Nukulaelae, and is even tinier: it is the smallest of Tuvalu's islands and, with a population of only 65 as remote an outpost as anywhere in the Pacific. The sea was a little calmer than at our previous landfall, though the captain brought the ship about to create a lee and allow the workboat to draw alongside.

The ship's boat was loaded to the gunwales with passengers and cargo,

and as we neared the entrance to Niulakita lagoon the helmsman cut the throttle, waiting for the right wave to carry the heavily laden boat into the lagoon. A minute or so later he selected his wave and we made a perfect entry . . . only to run aground again. The welcoming committee on shore cheered as the workboat disgorged its passengers: it wasn't the tide this time, however, but the sheer weight of numbers that had stopped our progress.

Niulakita is so small that I walked from one end of the island to the other in less than 15 minutes. The village, which lies close to the lagoon entrance, was deserted but for some piglets; everyone else (including the adult pigs) was down on the beach to see who and what was coming ashore from *Nivaga II*.

The tiny village of Niulakita is dominated by a colourful church, and it was particularly pleasing to stroll around a place that lacks any of the litter associated with more 'progressive' population centres; no drink cans or cigarette packets litter the ground, partly because most of the locals have little cash to spend on such things.

I was soon introduced to a friendly and jovial village elder, who expressed his disappointment that I was leaving with the ship and urged me to return one day and spend a few weeks on Niulakita: a compelling invitation, as I had met virtually every inhabitant of the village in the course of an hour and had been offered so many drinking coconuts that I left feeling that I was farewelling old friends.

Nivaga II was due back in Funafuti at 7.30 next morning, but a rough night at sea delayed our arrival and I had time to thank the captain and his officers for their hospitality before we tied up at Funafuti's deep sea wharf. The Tuvalu Government hopes more visitors will take the opportunity of joining *Nivaga II* for a taste of the outer islands; and it's a trip I heartily recommend. Cabin rates are modest and the food is of a high standard: together with a friendly and professional Tuvaluan crew, a voyage aboard *Nivaga II* is a must for those who enjoy travelling to exotic places at a relaxed and humane pace. □

Nivaga II operates a passenger and cargo service with provision for refrigerated cargo every two months from Suva to Funafuti, and a regular service to the islands of Nukulaelae, Niulakita, Nukufetau, Vaitupu, Nui, Niutao, Nunumanga and Naumea atolls. Details can be obtained from the Tuvalu High Commission in Suva or from the Ministry of Works and Communications, Post Office Vaiaku, Funafuti, Tuvalu. Cable address; WOCOM, FUNAFUTI.

THE REGION

RAPID POPULATION growth and poorly planned economic development programmes are leading to the destruction of wilderness areas and their plants and animals at an alarming rate, according to a new report from the World Bank's Office of Environmental Affairs.

If current trends continue, as many as six million species of plants and animals may have become extinct by the end of this century — and the loss of these species could have a profound impact on the development efforts of many countries, according to George Ledec and Robert Goodland in their report, *Wildlands: Their Protection and Management in Economic Development*.

George Ledec has worked as a consultant to the World Bank's Office of Environmental Affairs, and Robert Goodland is chief of the Environmental Division in the Bank's Latin America and Caribbean Regional Office. Their study has found that the preservation of forests, jungles, coastal areas and other wildlands can actually improve prospects for long-term economic development. Wildlands kept in their natural state and properly managed serve as refuges for plants and animals that may have direct economic uses, and provide important "environmental services" that help prevent floods and droughts, control soil erosion and stop the spread of disease.

Wildlands provide a "diverse genetic base" for plant breeding; without this base, the study asserts, "the development of high-yielding crop varieties could probably not be sustained". About a decade ago, for example, a unique species of perennial wild maize was discovered in Mexico . . . and may help boost the world's food production. The maize is being cross-bred with more common varieties to produce plants that are resistant to pests and diseases — and if the tiny area of land in which the wild maize grows had been cleared, such hybrids could never have been developed.

Protecting wild plants from extinction is also important to the production of medicinal drugs. "More than 40 per cent of all prescriptions written in the United States contain one or more drugs that originate from wild species," the report says.

Wildlands are also home to animals that play a similarly vital role in the lifecycles of many food or medicine-producing plants, or that serve as important food sources for humans. "Subsistence harvesting of rodents, fish and birds makes a significant contribution to people's diets," the report's authors emphasise.

But wilderness is important not only

Wilderness destruction threatens development

Conservation of natural habitats is actually good for business — and development projects, according to a World Bank report.

because of the resources it contains: wilderness areas are just as important because they can actually enhance the long-term productivity of development projects. They protect and improve the power production of hydroelectric dams, since the clearing of forests and other watersheds leads to increases in erosion, runoff and siltation, limiting the amount of water that can be stored for power generation.

According to the study, "the useful life of the Ambuklao dam in the Philippines has been cut from 60 to 32 years because of deforestation, and virtually all of Colombia's lower Anchicaya Reservoir filled with silt within the first decade of operation . . .

Such losses in power-generating capacity translate into impaired industrial growth or into massive expenditures for flushing or dredging reservoirs or for constructing replacement facilities".

Destroying wildlands can also reverse progress in health conditions in some developing countries. In South America, yellow fever is transmitted

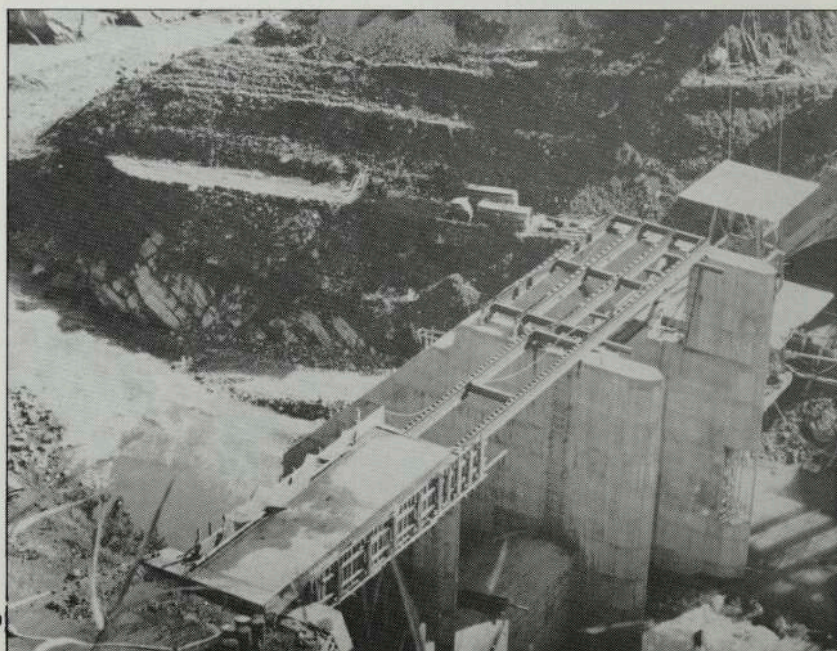
by a mosquito that thrives in sunlit areas. When trees are cut down the mosquitoes infest larger areas and the number of people infected through mosquito bites increases.

Over the past 15 years the World Bank and its affiliates have supported more than 40 projects that include measures to protect and manage wilderness. Most have helped establish or have strengthened officially protected and managed forests, grasslands and other wildlands.

Three of the projects were designed to protect downstream hydroelectric power-generating capacity by maintaining forested watersheds, and a further six have directly benefited tourism revenues by conserving wilderness and wildlife.

In Costa Rica, a project aimed at developing the nation's highways was

PNG's Ramu River hydroelectric scheme: trouble in store from deforestation upstream and from pollution downstream.



accompanied by measures to prevent clearing of forests — which not only reduce the risk of floods, but help prevent road washouts and landslides.

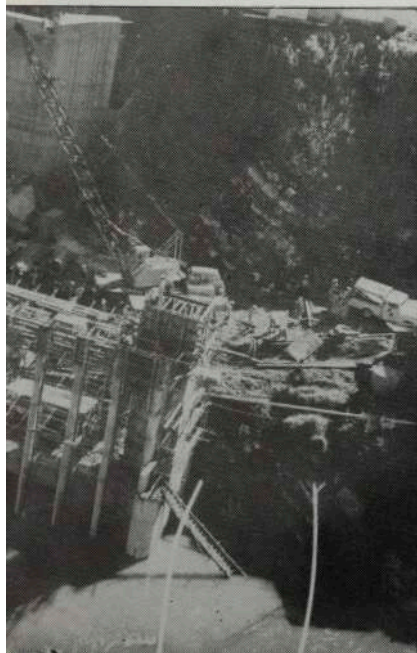
Including wilderness protection measures in development projects is relatively inexpensive and can increase the success of projects, the authors found. In Indonesia, an irrigation project on the island of Sulawesi benefited from efforts to set up the Dumoga-Bone National Park as the park's tree cover controls runoff and prevents sediment building up in irrigation canals, ensuring a steady year-round water supply for farmers.

Because of the variety of roles played by wilderness in the development process, governments and development agencies must intensify their efforts to protect these areas. "In the design and execution of development projects, wildland management concerns need to be given their proper place and weight," the study argues. "They must be part of the planning process from the very beginning and must be put on a par with conventional economic criteria in deciding whether a project is justified."

Failure to pay adequate attention to environmental concerns "exact penalties — in the harm done to future generations and in the heavy costs of repairing damage to the environment or of replacing goods and services that were once taken for granted."

Tellingly, the authors make the concluding point that the effects of environmental damage are felt most by the poor — those who are least able to "escape the consequences of a degraded environment, and who often depend directly on natural resources for their livelihoods". □

— Courtesy World Bank News



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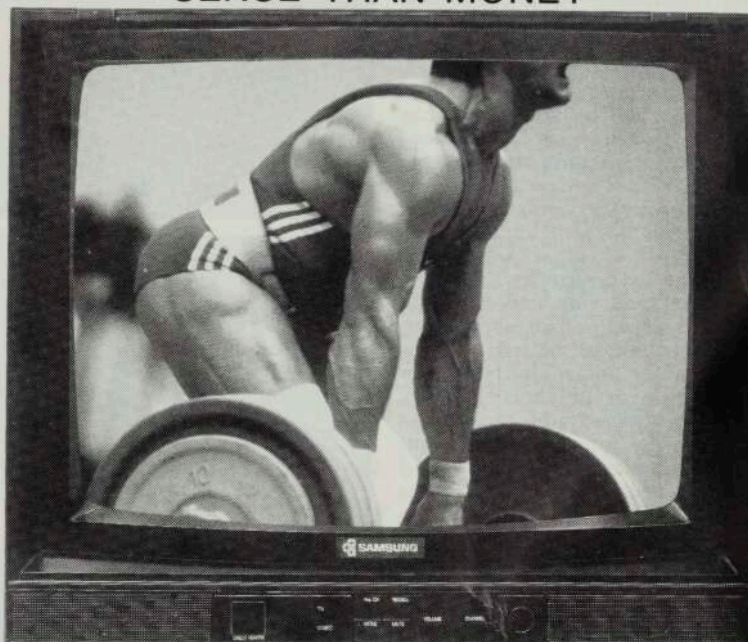
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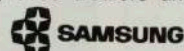
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PAPUA NEW GUINEA

MODERN Port Moresby has been painted in a bad light by the overseas press. Rascals, rape and political instability are the first things that spring to most people's minds at the mention of Papua New Guinea — a product of superficial and often distressingly sensationalist news coverage. Most visitors pass through 'Moresby' under the impression that it has nothing to offer, before setting off to more remote regions in pursuit of the much advertised 'Land of the Unexpected'.

But despite the tourists' fascination with so-called primitive culture, Papua New Guinea is at the same time a land that is busy carving a place for itself in the modern world.

It was little more than 50 years ago that the first European explorers encountered the people of the New Guinea Highlands — people who had no idea that a world existed beyond their mountain ranges. Barely a generation later, Papua New Guinea is an independent country, has adopted a Western legal and political system, has a National Broadcasting Commission, its own television station and five major newspapers. It is developing — in comparison with the West's experience of development — at lightning speed.

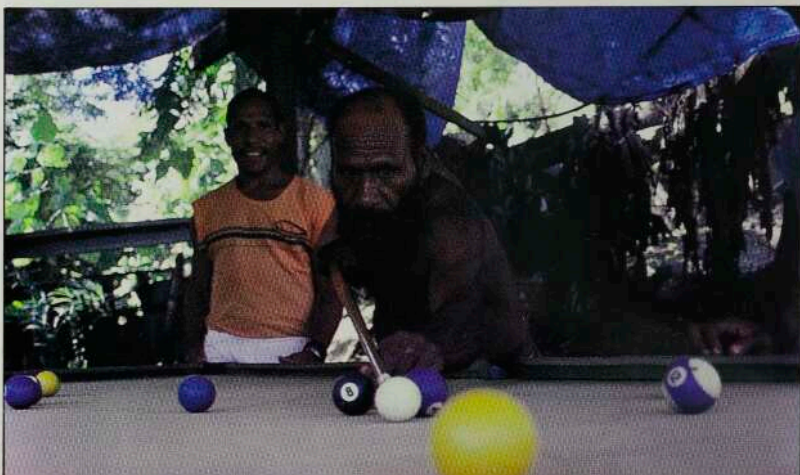
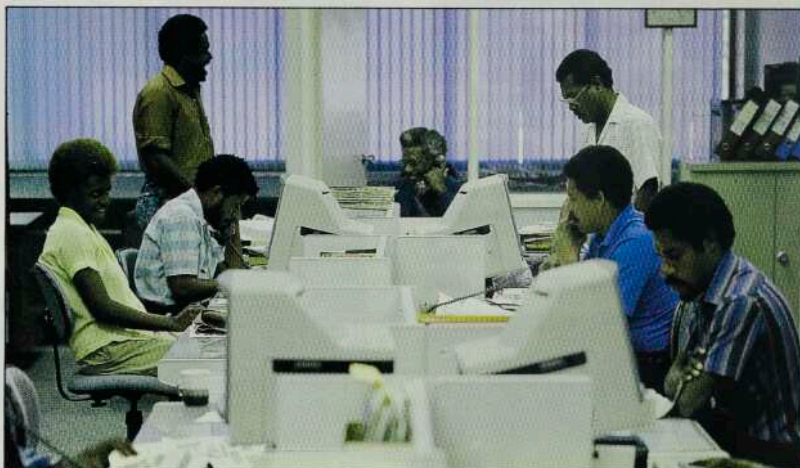
The result is, of course, a fair share of problems — difficulties that must be expected and understood in the context of such radical changes — but on the other side of the coin there is much creativity; much charm, as elements of tradition find themselves in a technological age; and as well as strides into the future a careful concern to retain elements of culture and heritage in this 'new' world. Papua New Guinea is a country struggling to come to terms with the 20th century in the space of decades . . . a fact that is all too frequently forgotten.

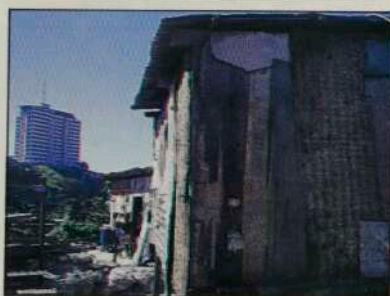
Criticism would be better directed at the 'entertainment' being brought into PNG (predominantly from Australia) and the effects it is having. *Rambo* videos line the shelves, Sylvester Stallone glowers from a thousand T-shirts. Just which elements of Western culture are being imported . . . and what responsibility is the West prepared to take for their effects? Cinema hoardings show muscular, sweating men brandishing torches and chains as they protect passive women: how can the nations that export such images condemn the attitudes (and the crime) they encourage?

There is much to be positive about in PNG and Port Moresby: especially the excitement of a country in transition. It is a place of juxtapositions: at this year's University of Papua New Guinea graduation ceremony, some students collecting their degrees were

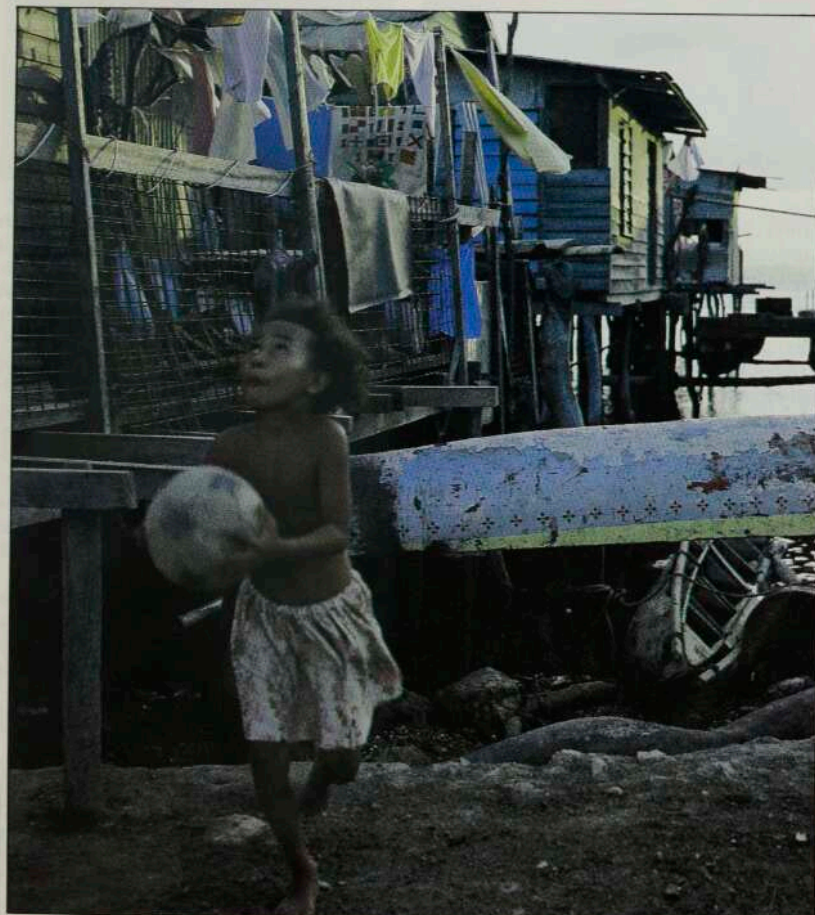
'Moresby' in profile

Photojournalist Liz Thompson profiles the city that is the leading edge of PNG's progress into the modern world.





The first-time visitor to Port Moresby is likely to be bemused by its lack of 'tropical' atmosphere; dry and dusty for much of the year; it is nevertheless a symbol of a nation striding toward the 21st century in the space of a few generations — an energy expressed by Western technology in an atmosphere where tradition is still important.



dressed in mortarboards and gowns while others, in red ochre and pig fat, pigs' tusks and feathers, celebrated their culture as well as their achievements. A Huli wigman, his face painted bright yellow and body smeared with oil, shook the Chancellor's hand as he received his Bachelor's degree in psychology.

Five journalists graduated from UNPG this year, the first to complete a new four-year BA in journalism. They may well work on one of the country's national newspapers. The *Papua New Guinea Post-Courier*, a national English-language daily, is considered the most sophisticated in the South Pacific.

A recently installed on-line computer system allows news to be sourced from around the world, edited on a terminal, typeset and laid out in a streamlined and efficient process — symbolic of the speed and enthusiasm with which PNG is moving into the Western high-technology world.

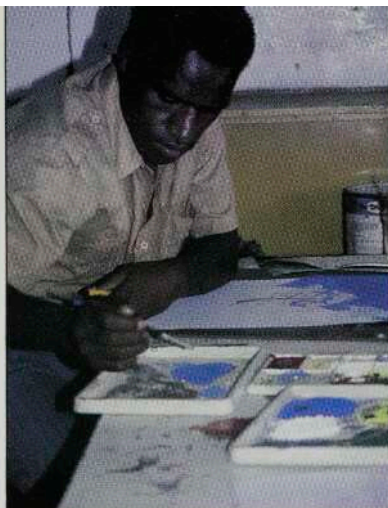
EM-TV, the nation's first commercial television station, broadcasts about 13 hours a day, relying heavily on older imported shows — especially soap operas, comedies and crime series — while NBC, the National Broadcasting Commission based in the Port Moresby suburb of Boroko, has 21 stations and at least statistically reaches most of PNG's population.

The Moresby skyline is changing, but architects and builders are becoming aware that culture is to be revered, not forgotten: the Port Moresby Travelodge reaches nine storeys, but carved Sepik posts decorate its lobby and National Arts School textiles and silk-screen designs cover cushions and walls. In fact, the city has seen a concerted effort to transfer traditional elements to modern architecture — a move led by the Government.

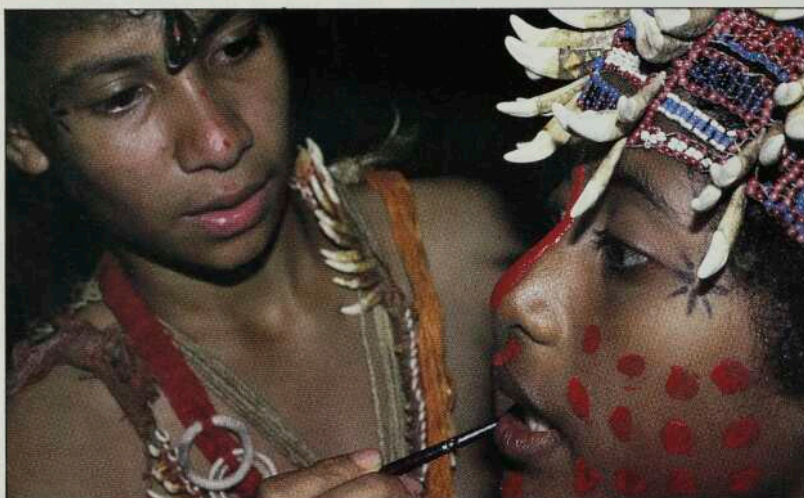
At the 18th Waigani Arts seminar, held last year, it was announced that all future development and construction would be required to devote a minimum of 2 per cent of overall building costs to the use of traditional styles in their decor.

Papua New Guinea's vibrant and very much alive artistic tradition is becoming appreciated internationally: not long ago a Japanese financial project setting up a new hotel in Singapore wanted a Melanesian style restaurant and commissioned the Arts School to provide 10 carved and painted Maprik figures, 50 square metres of carved and painted panelling and several posts. Through such admittedly commercial projects, traditional village carvers are generating an income using their own skills . . . and are inspiring young people to learn the crafts of their ancestors.

Within view of the buildings that feature their traditions cluster Port



Amid the modern Western influences (many of questionable relevance to the richest and most populous emerging nation of Oceania) there is a vibrant and confident sense of cultural identity, expressed in the work of Port Moresby's students and the practitioners of distinctively Papua New Guinean art forms.



Moresby's villages and squatter settlements. People who have migrated to the city seeking work have established themselves at the Two-Mile and Six-Mile settlements, where shanties perch among the trees, on rocks or on sun-scorched bare ground.

Religion is immensely important to PNG, and the people gather in a multitude of churches every Sunday to hear the gospel from dozens of different creeds. The Bible Translation Society is working to ensure that the speakers of PNG's 700-odd languages can read the good book in their own idioms. Seventh Day Adventists refuse to work on Saturdays — a belief that has known to cause problems when elections are scheduled for their sabbath while villagers living on the city's perimeters still observe customary ceremonies, and parents of the young women who attend the International High School will still on occasions request bride price.

Port Moresby's markets are a bedlam of colour and variety: rows of fruits and vegetables are piled high in precarious pyramids, black aubergines

next to bright pink jamalacs; green mounds of watercress, cabbage and spinach distract the eye from mussels threaded on to vines to form necklaces of seafood. Parrotfish and barramundi lie across concrete tables not far from rounds of charred wallabies.

Heavily tattooed women lug huge bilums full of taro and kau kau, while at Steamships department store Highlanders in knitted hats spend hours watching people move up and down the escalators. A glittering, chattering array of VCRs, television sets and stereo systems bears witness to the growth of a consumer society . . . and bursting sausages and mounds of chips at the fast-food counter bear witness to the invasion of Western concepts of 'nutrition'.

Part of all this kaleidoscope are wonderful, unique images of a country changing. Office workers in trousers and jackets, and shoes with no laces; bank tellers leaving their counters to stand on the footpath chewing *buai* (betelnut), spitting streams of blood-red saliva on the pavement; men window-shopping hand in hand.

This city that's painted black is, in fact, far from it. Its problems are a result of circumstance, and chastisement provides none of the relief that could be obtained from programmes based on understanding.

In conjunction with sing-sings, pig kills and stilt villages, there is a modern university and an ever-increasing involvement in the future. Port Moresby's transition may sometimes be halting and painful, but it is an evolution that would be a struggle in any country; an evolution that deserves to be applauded for its courage, not criticised at every opportunity.

It is a transition that attempts to amalgamate tradition with progress, and a testament to the fact that despite the problems that trouble it today — and those that lie ahead of it — Papua New Guinea is an exciting and beautiful place.

Not just for its painted faces and 'adventure', or for its traditions, but for what is new: its writers, journalists, radio; its theatre groups, contemporary music, art and architecture . . . its pride and vitality. □

TRANSITION

Sir James Henare: 1977-1989

David Robie writes on the passing of one of New Zealand's great rangatiras.

TRIBUTES flowed from throughout the Pacific when one of the great rangatiras of New Zealand, Sir James Henare — a distinguished soldier, farmer, politician, and advocate of Maori causes — died on April 2, aged 78. PM David Lange described him as having lived a life that exemplified the partnership promised in the Treaty of Waitangi.

"Sir James walked easily in both worlds, Maori and Pakeha," he said, "commanding respect for the ways in which he combined the best of the two cultures." Maori Affairs Minister Koro Wetere added that Honare was one of the *poupou* (pillars) of Maoridom and one of its greatest leaders.

"Not many leaders of our time owe their position to quiet dignity rather than vociferous opportunism. Sir James did," remarked the *New Zealand Herald* in an editorial. "His chiefly *mana* had its roots in a classic Maori upbringing and grew in battle."

Several thousand people converged on the Otiria Marae in Northland to

pay their respects after Sir James had died. Four days later he was buried with full military honours near his parents at that tiny Tau Henare Marae at Mototau. The procession, with a gun carriage carrying his casket from Otiria, was delayed for three hours to enable a contingent from the Pacific Islands to pay their respects. Mourners at the *tangi* (funeral) included the Moari Queen, Dame Te Atairangi Kaahu; Governor-General Sir Paul Reeves; Prime Minister Lange; Opposition Leader Jim Bolger; chiefs and elders of many Maori tribes and members of the 28th Maori Battalion.

The paramount chief of Tai Tokerau, Sir James was born in a nikau palm *whare* at Mototau, the son of Northern Maori MP Tau Henare. He spoke Maori at home and English at school; after studying at Massey Agricultural College he worked as a bushman and a farm labourer before marrying Rose Cherrington, a distant cousin to whom he had been betrothed at birth, in 1933. Together

they broke in a dairy farm in swamp-land at Motatau. Four of their six children had been born when World War II broke out and Henare's father ordered him to sign up.

Joining the New Zealand Army as a private, Henare rose to the rank of lieutenant-colonel, becoming commander of the Maori Battalion and taking part in major actions in North Africa and Italy. Wounded three times, he was awarded the DSO in 1945.

A source of inspiration and wisdom for his people throughout his life, Henare was also staunch in his conviction that the Treaty of Waitangi be honoured. He championed many Maori causes and helped found the *kohanga reo* (language nest) programme, which he is said to have named. He was knighted in 1978.

"His calm voice could move Maori and Pakeha," noted the *Herald*. "He had optimism that reserves of goodwill between the races in this country could overcome passing tension. New Zealand must live up to his memory." □

The Island Press

Reports from the papers, compiled by John Carter

I AM much concerned about the travellers who travel along the Highlands Highway.

On March 4 as I was travelling in a bus from Wabag to Mount Hagen, there was a landslide on the way. People cleared the road and after that, they put logs across the road and stopped the vehicles from going to Mount Hagen and back. They asked passengers and the driver to pay K10 each if they wanted to go quickly. If not, the vehicles would be held up for hours.

— From a letter in the
Papua New Guinea Post-Courier,
Port Moresby

EIGHT shopkeepers along Lautoka's Vitogo Parade had difficulty in opening their shops yesterday because matchsticks had been inserted in keyholes and padlocks.

Two shops on Vakabale Street were also hit by what Lautoka shopkeepers called "a crime imported from Suva".

Most of the shopkeepers had to break their padlocks to open their shops.

— From the *Fiji Times*, Suva

A SENIOR government minister has called for the reintroduction of the death penalty.

Trade and Industry Minister Galeva Kwarara also wants to bring back the Vagrancy Act to give courts the power to remove unemployed people from urban centres.

The minister yesterday issued a strongly worded statement calling for the tougher penalties following the death of a Rigo man in Port Moresby earlier this month.

"There is a strong case for the reintroduction of capital punishment," Mr Kwarara, who is MP for Rigo, said.

— From the *Papua New Guinea Post-Courier*, Port Moresby

CAPTAIN Bligh's epic 3600 mile voyage from Tufua, Tonga, to Timor, Indonesia, will be re-enacted on 28 April. The William Bligh Trust in England is sponsoring the event to mark the bicentennial of the voyage, which was forced on Captain Bligh and some

15 other members of his crew following the mutiny on the *Bounty*.

— From the *Samoa Times*, Apia

A MEMBER of staff in the Department of Agriculture is conducting a research study on the country's most important staple root crop, sweet potato or kaukau.

The crop, originally found in South America, was introduced to Papua New Guinea some 400 years ago and has attained a prominent place due to its adaptability both in the Highlands and lowland areas.

It provides between 60 and 90 per cent of energy needs in the Highlands and an average of 50 per cent of the national requirement. It has been estimated that the annual production of sweet potato in the country is about 1.2 million metric tonnes, with a value of K150 million.

— From the PNG University of Technology's *The Reporter*, Lae

Pacific Report

□ NEW RADIO WAVES

RADIO Australia has lifted its Pacific profile with the launch of a new programme aimed specifically at the region. *Pacific Beat* is heard on shortwave each weekday. Its format initially will focus on news, information and entertainment with further shaping likely after listener response is considered.

The new programme will be heard between 0500-0900 Universal Co-ordinated Time (add 12 hours in Fiji, Kiribati, Tuvalu; add 13 hours in Tonga; deduct 10 hours in Cook Islands; deduct 11 hours in Samoa and Niue; add 10 hours in Papua New Guinea).

Pacific Beat will be heard on 11770kHz, 15160, 17750 and all Radio Australia channels in use for English language programmes during those hours.

□ FIJI YACHT INVASION

FIJI is bracing for an invasion of yachties as the Auckland-Fukuoka Ocean Race nears completion. A fleet of between 65 and 70 yachts left Auckland on April 22 to compete in two races — the Auckland-Fukuoka and Auckland-Suva. The yachts are expected to arrive in Suva from May 2 and preparations for the influx have been underway for some time.

About 800 crew members are expected and the strong Japanese interest in the race sees a contingent of some 200 Japanese competitors. Berthing facilities at the Royal Suva Yacht Club have been upgraded and accommodation and catering has been arranged.

The yachts will set sail for Guam on the second leg on May 9.

□ MISSION FROM TONGA

THE principal of a new agricultural college in Tonga is attempting to find ways of encouraging destitute young people to take up a career on the land. Reverend Maramarla Vaea heads the Tupuo Young Farmers' Training College. Reverend Vaea recently spent time at the University of Western Sydney to develop a special syllabus for application in Tonga.

"I have a wide ministry to serve, but I particularly want to help destitute young people; Tonga's street people, to get a start in farming," he said. "We want a syllabus that will provide the opportunity for students who don't complete their secondary education to learn all aspects of farming."

The Tupou College is situated on farmland, part of which operates as a commercial enterprise. Rev Maramarla hopes the practical experience of work on the college farm will dispel the perception many Tongans hold that life on the land is inferior or lacks prestige.

□ KING WANTS WIND POWER

KING Taufa'ahau Tupou IV of Tonga has expressed interest in wind power and aquaculture. On a recent visit to Hawaii the King toured examples of both technologies and invited officials to visit Tonga to examine the prospects of introducing them in his nation.

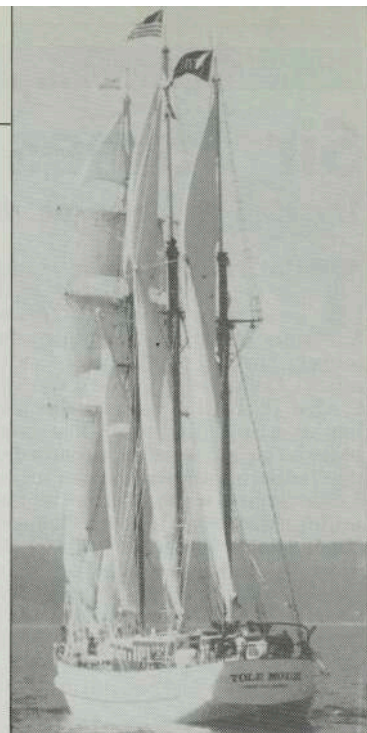
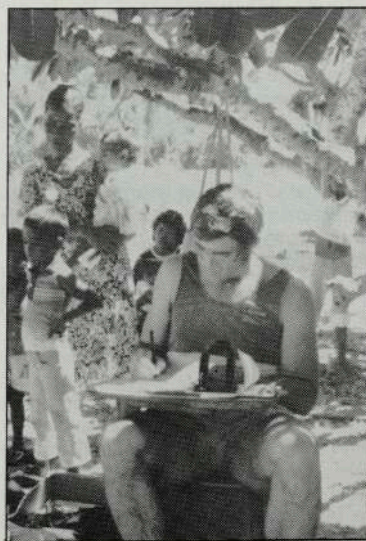
Both technologies offer considerable benefits for Tonga. The wind plant on Oahu Island can produce 24 million kilowatt hours a year — enough to replace 40,000 barrels of oil for power generation — while the aquafarm visited by the King produces both wetfish and shellfish. The King is reportedly keen on developing mullet for export to Japan, where a single egg sac sells for as much as \$130.

Wind power technology may replace oil-generated electricity on Tongatapu and could be used to produce power on outer islands of Tonga.

□ FIJI EXPELS PRIEST

FIJI'S interim government has expelled a New Zealand Catholic priest critical of alleged human rights abuses. Father Tom Rouse had worked among Fiji's under-

Tole Mour medical officer David Higgins conducts a literally barefoot doctor clinic in the Marshall Islands.



Floating health clinic and "health services vessel" Tole Mour is the working arm of the Marimed Foundation of Honolulu.

privileged for 12 years. He was given four days' notice to leave the country and while no official explanation was offered for his expulsion, supporters believe it was politically motivated.

Father Rouse was one of 18 people arrested in Suva during a prayer vigil last May. Arriving in Sydney after his expulsion, Father Rouse told reporters that racial, religious and class divisions were increasing in Fiji. He said the development of free trade zones had been accompanied by worker exploitation. Father Rouse also criticised the continued presence of the military and said human rights were not being addressed.

□ PNG HIJACK SCARE

SECURITY at Papua New Guinea's airports has been tightened following threats of a hijack attempt. Civil Aviation Minister Bernard Vogae says unconfirmed reports had been received of possible threats against civil aviation. Check-in times for domestic flights are now two hours before scheduled departure, while international passengers must check in three hours before take-off.

Mr Vogae says delays must be expected but the decision to extend security checks will be reviewed early in May.

□ SOVIET BAN LIFTED

PAPUA NEW GUINEA has lifted a

10-year ban on port calls by Soviet cruise ships. The move paves the way for the opening of diplomatic relations between the two countries. The ban was imposed in 1979 as a protest against Soviet intervention in Afghanistan. Foreign Minister Michael Somare said the easing of certain aspects of the ban was designed to enable normal relations between PNG and the Soviet Union to be restored.

Soviet cruise ships will be allowed to dock in PNG ports and their sailors will be allowed ashore but the ban will still apply to Soviet fishing vessels. Negotiations with Moscow over a possible fishing agreement were reportedly unlikely before diplomatic ties are formally established.

□ MARSHALLS HEALTH CRUISE

ISOLATED islands often cannot provide adequate medical care and health services. To overcome this problem, a three-masted 50-metre schooner, the *Tole Mour*, has commenced operation around the Marshall Islands as a floating health clinic. The Marimed Foundation of Honolulu funded construction of the traditional tall ship, which has been serving communities in the Marshalls since December 1988.

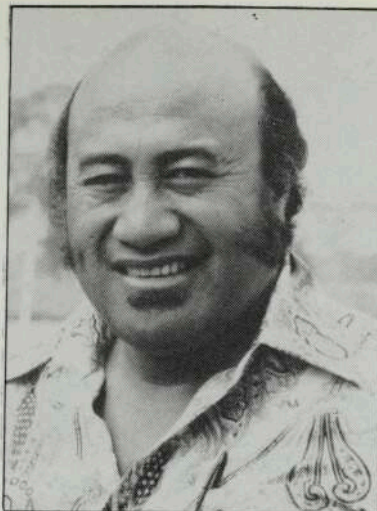
The ship spent one month at Arno Atoll providing health services and training clinics. A 17-member health team of staff and volunteers visited eleven communities on the atoll.

Tole Mour is not a hospital ship but rather a "health services vessel". It is equipped with an exam room, dental and eye clinics, a diagnostic laboratory, X-ray room and pharmacy. It is designed to help the Marshall Islands Health Ministry conduct its programme of health care on isolated coral atolls.

□ IGUANAS ON INCREASE

IGUANA population has increased on the Fijian island of Yaduatabu since the National Trust of Fiji declared it a protected area. When the trust took over the island there were only 500 of the rare crested iguana to be found. But since the listing of the area as protected in 1981 the population has increased to almost 8000.

The people of Yaduatabu used the island to raise goats until 1981 when it was found the iguanas were dying out because the goats were destroying the vegetation. An agreement was reached with the residents, the goats were removed and a marked increase in iguana numbers was noticed almost immediately.



Reverend Malamarla Vaea, of the Tupou Young Farmers' Training College, Tonga — helping Tonga's destitute young.

□ NAURU: A CORRECTION

A REPORT on page 36 of the February issue of *Pacific Islands Monthly*, headed 'Australia, NZ Silent on Nauru Compensation Claim' contained two errors.

The article stated: "The three nations, Australia, NZ and UK, made

a pre-independence payment of \$21 million intended to cover rehabilitation costs to that date." A spokesman for the Republic of Nauru has asked us to point out that it was, in fact, the Republic of Nauru that paid \$21 million to the British Phosphate Commission under the requirements of the 1967 Phosphate Agreement between the Nauruan Local Government Council and the three partner governments.

In the same article, Nauruan President Hammer DeRoburt is quoted as saying that Nauruans could not be asked to use their own funds to rehabilitate mining that had taken place both before and after independence. His statement said that Nauruans could not be expected to use their funds for pre-independence rehabilitation.

□ SOUNDS OF MUSIC

A SPECIAL exhibition of Pacific musical instruments will be on show at Auckland Museum during May. "The Sounds of Oceania" display coincides with the publication of a new book, by Auckland University ethnomusicology lecturer Dr Richard Moyle, which describes the Museum's collection for an international audience.

Photographed in an executive suite, Suva Travelodge

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□ VANUATU'S COCONUT CRABS ENDANGERED

A RECENT STUDY has warned that extinction could be a possibility for Vanuatu's coconut crabs unless urgent attention is paid to the proper management and conservation of a resource that has been disappearing from its natural habitats almost as quickly as it has been vanishing down the throats of tourists.

Despite a two-year population survey, scientists have been unable to find single juvenile specimen of *Birgus latro*. They have also noticed the areas with reasonable stocks of crabs in 1985 were severely depleted by 1987. These data, over-exploitation of crab populations for the tourist market, are causing anxiety in the Vanuatu Fisheries Department.

The population study was part of a research and conservation management project funded by ACIAR (the Australian Centre for International Agricultural Research) and designed by the Queensland Department of Fisheries, the University of Queensland and the Vanuatu Fisheries Department. Craig Schiller, an Australian biologist who took part in the study, estimates that "Coconut crabs wherever they are — with the exception of those on Christmas Island — are headed for extinction."

Dr Rick Fletcher, senior on-site biologist for the project, wrote in the March 1988 issue of *Naika* (the newsletter of the Vanuatu Natural Science Society) that "to be absolutely sure of saving the coconut crabs, it may be necessary to ban all collections for sale in restaurants . . ." Coconut crabs feature heavily in tourist promotions as an exotic and very popular culinary experience that travellers are encouraged to try.

Coconut crabs are primarily nocturnal, and are usually found within a few hundred metres of the sea — but contrary to conventional wisdom, coconuts do not form a major part of their diet. Many crabs live where there are no coconut palms, but even more compelling evidence for the species' mis-naming is that a large crab can take up to *three weeks* to open a coconut! Small crabs cannot open them at all and it has been revealed that the animals are, in fact, omnivorous scavengers that willingly consume coconut meat . . . when it is used as bait by humans. The minimum legal size for commercial coconut crab is 9 centimetres along the top of the shell: a crab of this size would be between 12 and 15 years old, while



MATTHEW MCKEE

Before and after: a mature coconut crab (top) may weight more than 2 kilograms . . . until it is served to a tourist.

a large, mature specimen — weighing more than two kilograms — would be at least 30 years of age.

Dr Fletcher's article makes five recommendations: that a publicity campaign be established to draw attention to the problem; that stronger legislation be introduced to restrict crab sales to licensed vendors, with a quota system on harvesting; that the Vanuatu Fisheries Department maintain a yearly sampling programme to assess remaining crab stocks; that sanctuary areas for coconut crabs be provided; and that areas are regularly 'reseeded' with juveniles crabs that have been reared in captivity.

Larry Vallance, manager of Natai (the commercial processing and marketing arm of the Fisheries Department) says the findings of the study have resulted in a "gentleman's agreement between village chiefs, local councils and ourselves." Villagers of the Banks and Torres Island groups, where the main commercial stocks of coconut crabs are harvested, have established a voluntary quota of catching no more than 10 per cent of the total estimated crab population each year over a 10-month season (the restricted months of November and December are part of the crabs' breeding season). Natai has been authorised to deduct 5 per cent of the total value of the catch, and this amount is passed on to the local councils to help with the cost of monitoring the crab populations.

Natai is not, however, the only

buyer of crabs from the Banks and Torres groups — one of the international hotels in Port Vila is buying directly from an operator in the islands — but the islands are the only participants in the voluntary quota scheme. If the crabs purchased by Natai are not sold in one calendar month, there is a proportional restriction on the next month's catch. After the May 1988 riot, the demand for crab slumped along with the number of tourists, so after three months Natai had stockpiles of 1.5 tonnes of frozen crabs. A total restriction on crab harvesting followed until early February this year, by which time when the frozen stock had been sold.

The economic value of Vanuatu's coconut crab industry is difficult to estimate, and there are few reliable figures available. According to Vallance, Natai supplies about 60 per cent of the Port Vila crab market and would buy approximately \$A35,000 worth of crab from the Banks and Torres Communities each year.

The concept of establishing sanctuary areas is currently under consideration, and two islands are being investigated with a view to restocking with crabs purchased with aid funds from Natai. The feasibility of sanctuaries will depend on research currently in progress at the University of Queensland, where Shane Lavery, a doctoral student, is studying the genetic makeup of coconut crabs.

If genetic differences are found in crabs from different areas, they are unlikely to undertake mass migrations and numbers must be replaced from within the local stock: if this is the case, each crab resource must then have to be managed separately whether distinct populations are found on individual islands or in separate areas on one island.

Restocking an area with live crabs from a different area may therefore be harder than it sounds; but according to Shane Lavery, "the indications are that coconut crabs in Vanuatu are generally the same — which means restocking them or culturing them is possible," said Lavery.

Although no official sanctions on serving coconut crabs to tourists have been instituted, public awareness is being heightened through the sale of T-shirts (profits from which go to further conservation research) that bear the warning, in Bislama, *LUKAOT! BAMBAE KRAB KOKONAS INOMOKAT*.

— Matthew McKee

Tropicalities

"MISLEADING" MICRONESIA

THE FEBRUARY 1989 issue of *Pacific Islands Monthly* includes an article on Micronesia titled "Kwajalein: Furore in Perspective" by Ed Rampell. In my opinion, Mr Rampell's article contains some misleading statements.

Granted, there was a strong feeling in the United States on the completion of World War II concerning secure borders. The Pearl Harbour attack, launched from Micronesian waters, was a shocking psychological blow to US security. These feelings persist among many of our leaders and so they seek to set our front line of naval defence as far away from the continental US as possible.

The statement that Mr Rampell quotes from Congressman Herbert in 1945 must be taken in the emotional context of the times. Many died fighting for those islands.

I also grant that there is great ignorance among American politicians concerning Micronesia and her problems. Little attention is paid to the Pacific islands mainly because they are so . . . pacific. US statesmen, concerned with crises in the Middle East, Central American and Eastern Europe are (sad to say) unlikely to spend much time worrying about a few thousand islanders.

What Americans need to learn is that a little effort taken now to satisfy the needs of the Micronesians will save a great effort later. It is too late to build a dam after the flood.

Now that I have shown where I agree with Mr Rampell, let me state my disagreements. Mr Rampell discusses in great detail the termination of the Trust Territory agreement and denounces the United Nations for not standing up to the US on the issue. The Compact of Free Association, he says, is something the United States has blackmailed Micronesia into accepting and only the UN can stop it. This view ignores the fact (carefully omitted from the article) that the Micronesians voted for the Compact in free and open elections. In fact, they approved it by rather hefty margins. Mr Rampell as much as admits that the Soviet Union would veto the termination of the Trusteeship. Should the UN allow the leaders of the USSR to have a greater say in the future of Micronesia than the Micronesians themselves? Mr Rampell offers the fact that the Trusteeship Council is still in existence as proof that the UN considers the termination of the agreement illegal. I would suggest that

the Trusteeship Council still exists because of the unsettled contradictions between the Compact of Free Association and Palau's nuclear-free constitution. The Trusteeship Council cannot be disbanded until all of Micronesia has settled its political status.

I simply could not believe my eyes when I read the following sentence: "Naturally, the USSR is as pleased by military bases on Guam and a Star Wars facility in the Marshalls as America was at the prospect of having nuclear weapons stored in Cuba." This is what most people would call a faulty analogy. Is Micronesia 90 miles away from Soviet territory? Does Micronesia sit astride any Soviet trade routes? Could Moscow lie in ruins 10 minutes after a nuclear launch from Micronesia? Come on, Mr Rampell! Suggesting that Micronesia could become an East-West flashpoint sets a world record for jumping to a conclusion. Apocalyptic predictions do not serve the interests of Micronesia nor any of the Pacific islands.

Micronesians have legitimate complaints against the United States. But all that have I read and seen suggests that virulent anti-Americanism is not the dogma of Micronesians. My personal belief is that Free Association is a temporary status. I wonder how Mr Rampell would react if Guam and Micronesia ultimately chose statehood over independence? If the United Nations is concerned about the problem of national self-determination, their time would be better spent wondering what happened to those "free and open" elections the Soviets promised to hold in Eastern Europe. Colonialism takes many forms.

Michael Antonucci
Carmichael
California, USA

WHILE we gladly publish Mr Antonucci's letter, we must point out that his response contains several "misleading statements" of its own.

First, the fact that Micronesians voted for the Compact of Free Association with the United States was not "carefully omitted" [sic] from Ed Rampell's article. In fact, this has been covered in considerable detail in past issues, and we do not seek to bore our readers with inutile repetition.

Ed Rampell's article referred pointedly to the fact that Palauans have not voted for Free Association in numbers sufficient to meet the requirements of that Republic's Constitution — a snub that has met with responses that demean the United States' self-professed role as the cham-

pion of global democracy and freedom.

Second, Mr Antonucci is guilty of, at best, ignorance if he believes US nuclear warheads are more distant from Soviet territory than Soviet missiles may potentially have been from US territory had they been installed in Cuba. While Moscow may not be as close to Micronesia as Washington is to Havana, the major city of Vladivostok could be vaporised within minutes of a missile launch from US Pacific bases.

Third, Mr Antonucci says that the story carried the assertion that the USSR should have a greater say in determining Micronesia's future than Micronesians themselves. This is preposterous — and a distortion of the article's wording. What Mr Rampell was attempting to convey was the belief that neither the USSR nor the USA has a greater right to determine Micronesia's future than the inhabitants of those islands.

FIRST-HAND FRIENDS SOUGHT

YOU MAY be surprised to receive mail from Germany, but I read *Pacific Islands Monthly* regularly and am always interested to get news of the politics, economics and arts of the Pacific — we hardly see any news here about your part of the world.

It's my hobby to deal with the history and current problems of the Pacific Islands, and I believe the best way of getting news is by having friends in the Pacific. I would be very grateful if you could publish my letter so people living in the Pacific could write to me.

Petra Schumann
Str. D. Befreiung 82-E
COSWIG
DDR 8270

TUVALU IN PERSPECTIVE

THE TENTH Anniversary of Independence in Funafuti was not all flowers and happiness. A lot of tourists — including myself, the only yachtie in Funafuti — were ordered to leave Tuvalu before the start of the celebrations. A young Norwegian in the process of becoming married to a Tuvaluan also had to leave the country temporarily . . . a Japanese tourist in Suva, Fiji, was prevented from sailing to Tuvalu aboard the new ship *Nivaga II*, though he had already booked accommodation in a guest house at Funafuti.

At first I was confused, but after seeing the secretary to the Governor, I

got the message: he said, "How do I know if you are a terrorist or not?" I guess there had been a terrorist scare . . . and only invited guests were welcome at the celebrations.

Egon Carlsson
Hallabro
Sweden

"BANANAS" REVISITED 1

I READ with interest, but mixed feelings, your article "On not going bananas in the Pacific". You seem somewhat unfair when you compare the fate of the French ex-colonies, notably in Africa, with other nations' former colonies such as New Zealand, Canada, the United States and Australia — where the original population (or what is left of it) could have expressed particular complaints we don't hear in former French territories. You also mention Hong Kong and Singapore, whose successes owe not a little to Chinese ingenuity.

You imply that France had left behind only "hatred and humiliation" while referring to Africa. Let me disagree cordially with you: if you compare the present situation of francophone Africa with a number of other African countries (which I would not mention, so as not to offend them or their former colonisers), I would dare say that the French record is not bad.

True, some of the francophone countries of Africa are experiencing great economic difficulties — but look at what is happening in other African countries; unfortunately, their fate is worse in most cases.

The wars we waged in Indochina and Algeria were more than regrettable. However, our relations with Algeria, where the French presence has been less than futile, are trustful; a great degree of genuine mutual understanding exists between the two peoples and certainly resentment is not felt. As for Laos, Cambodia and Vietnam, I do not know that they harbour feelings of "hatred and humiliation" — at least toward us. They certainly are deprived not only of material prosperity, but also of essential

human rights; nevertheless, they are fully aware that France is not to be blamed for this situation.

Concerning New Caledonia, I would agree that for a long time France has been too much looking inward. But a real chance has taken place and we now wish very much that the [territory] will expand its relations with all other countries in the Pacific. The new political status will enable [it] to do so. Different circumstances explain the difficulties that exist and that surfaced so violently last year; the French Government is trying to remedy this situation by implementing an elaborate plan of political, economic and social development.

The ethnic balance in New Caledonia being what it is, "giving independence" would be a meaningless proposition; only a free and democratic decision — coming after two similar referenda in 1958 and 1987 — will allow the population in 10 years' time to decide its own future.

Roger Duzer
Ambassador of France
Canberra, Australia

"BANANAS" REVISITED 2

YOUR ARTICLE certainly brought back memories: I was stationed just below La Foa for several months during 1944, and an occasional jeep ride into Noumea was endured because of anticipation of a pleasant evening at the Hotel du Pacifique, of pleasant memories.

I've been on the island a couple of times since and have to agree that during the journey to Noumea from Tontouta nothing had changed, despite the wide open spaces. There were, perhaps, a few additional holes in the road, but otherwise nothing was different.

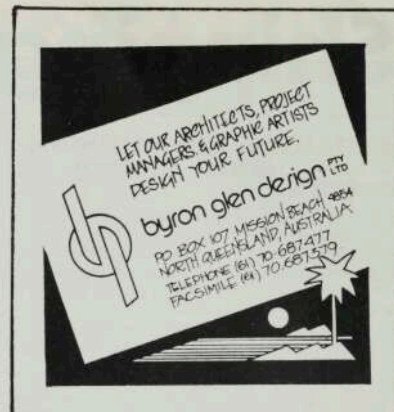
I made a mental observation while there that the French were lousy colonisers, and judging from the consistent reports in Pacific Islands Monthly [and elsewhere] they still haven't learned anything about human nature.

Urban D Kapler
Phoenix
Arizona, USA

Forum

On not going bananas in the Pacific

Ever since the days of Jean-Jacques Rousseau, philosophers have turned to Oceania in search of an ideal society. C S Hopman, a longtime resident in New Caledonia, offers his thoughts on what could be done to create a society that could profit from its very distance from less happy lands. Readers are invited to respond to Mr Hopman's ideas: write to him % Pacific Islands Monthly, GPO Box 4245, Australia 2001.



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Shipping Schedules

AUSTRALIA — NEW CALEDONIA — FIJI — HAWAII — NORTH AMERICA

PACE Line (ACTA Shipping) operates a fully containerised service every 17 days from Melbourne, Sydney and Brisbane to Noumea, Suva and Lautoka. The vessels continue on to the North coast of America, calling at Hawaii at frequent intervals.

Details from ACTA Pty Ltd, Sydney (266 0633); Tlx AA121369; Fax 267 1148; Burns Philp (SS) Co Ltd, Rodwell Road, Suva (311 777); Tlx FJ2168; Fax 301 127; Burns Philp (SS) Co Ltd, Lautoka (60 777); Sato SA, Avenue James Cook BPC 2, Noumea, Cedex (281 122); Tlx 3163 NM GATO. Fax 276 532.

AUSTRALIA — SAMOAS — TONGA

Warner Pacific Lines operates a regular container service from Sydney, Brisbane and Melbourne to Nuku'alofa, Pago Pago, Apia and Vava'u with transshipment to Rarotonga.

Details from Hetherington Westfarmers Shipping Agency, 37-49 Pitt St, Sydney (223 1600).

AUSTRALIA — NEW CALEDONIA — FIJI — SAMOAS — TONGA

Pacific Forum Line operates a fully containerised service (general, reefer and r-o-r) from Sydney to Noumea, Lautoka, Suva, Apia, Pago Pago, Nuku'alofa, Sydney. Cargo centralised from Adelaide, Melbourne, Brisbane.

Details from Pacific Forum Line, PO Box 796 Auckland; Union Bulkships, 333 George St, Sydney, Brisbane and Melbourne; Union Co, Lautoka; Pacific Forum Line, Suva, Nuku'alofa; Pacific Forum Line, Apia; Polynesia Shipping, Pago Pago.

AUSTRALIA — KIRIBATI

K. Asia Pacific operates a 5/6 weekly service from Melbourne and Sydney to Kiribati (Tarawa). Details from K. Asia Pacific Pty Ltd, Goldfields House, 1 Alfred St, Circular Quay, Sydney (232 2277); Tlx 122143.

KAP New Guinea Lines calls Tarawa after PNG ports on a 35-day basis from Melbourne and Sydney/Brisbane.

Details from K. Asia Pacific Pty Ltd, Goldfields House, 1 Alfred St, Circular Quay, Sydney (232 2277); Tlx 122143.

AUSTRALIA — TUVALU

K. Asia Pacific operates a direct service every second voyage to Tuvalu (Funafuti).

Details from K. Asia Pacific Pty Ltd, Goldfields House, 1 Alfred St, Circular Quay, Sydney (232 2277); Tlx 122143.

AUSTRALIA — NORFOLK ISLAND — LORD HOWE ISLAND

Norfolk Island Shipping Line operates a direct service every 5/6 weeks ex-Sydney.

Details from K. Asia Pacific Pty Ltd as managing agents for NISL, Goldfields House, 1 Alfred St, Circular Quay, Sydney (232 2277).

AUSTRALIA — NEW CALEDONIA — VANUATU

Norfolk Island Shipping Line operates a direct service every 5/6 weeks ex-Sydney.

Details from K. Asia Pacific Pty Ltd as managing agents for NISL, Goldfields House, 1 Alfred St, Circular Quay, Sydney (232 2277). Compagnie Generale Maritime operates a monthly service from Sydney, Melbourne and

Brisbane to Noumea, Port Vila and Santo, for containerised and break-bulk cargo.

Details from Compagnie Generale Maritime 12 Castlereagh St, Sydney (231 3700).

AUSTRALIA — NAURU

Nauru Pacific Line operates a regular cargo service from Melbourne to Nauru, passenger service to Nauru only.

Details from Nauru Pacific Line (Aust) Pty Ltd, Nauru House, 80 Collins St, Melbourne (653 5709), Nedlloyd Swire, 8 Spring St Sydney, (20 522).

AUSTRALIA — SOLOMON ISLANDS — VANUATU

NGAL/PNGL joint service operates a monthly service.

Details from Nedlloyd Swire Pty Ltd, 6 Spring St, Sydney (20 522).

AUSTRALIA — NEW ZEALAND

The Australian National Line and the New Zealand Line operate a 10-day container service (TRANZTAS) between Sydney and Melbourne to Auckland, Wellington, Lyttelton and Port Chalmers.

Details from Australian National Shipping Agencies, 131-137 York St, Sydney (225 7333) and Australian National Shipping Agencies, "World Trade Centre", cnr Flinders and Spencer Sts, Melbourne (611 2323) or New Zealand Line, Pastoral House, 96 Lambton Quay, Wellington (72 2245).

AUSTRALIA — NZ — FIJI — VANUATU — NEW CALEDONIA — SOLOMONS — NEW GUINEA

Sitmar Cruises operates a year-round cruise program from Sydney to include the better-known ports in the above countries plus a number of unspoilt, and largely unknown, island paradises.

Details from Sitmar Cruises, 39 Martin Place, Sydney (239 9000) for NSW; reservations and inquiries (008 42 2277); rest of Australia, reservations and enquiries (088 22 2277).

AUSTRALIA — NZ — FIJI — TONGA — VANUATU — NEW CALEDONIA — SOLOMONS — SAMOAS — TAHITI

P&O Liners call at Auckland, Bay of Islands, Honiara, Lautoka, Noumea, Nuku'alofa, Pago Pago, Papeete, Port Moresby, Santo, Savusavu, Suva, Vava'u and Vila on cruises from Australia.

Details from P&O Booking Centre, Thomas Cook Pty Ltd, 33 Bligh St, Sydney (237 0333).

AUSTRALIA — PNG — SOLOMONS — VANUATU

A consortium of NGAL/PNG and CONPAC/NEL has four vessels operating a joint service from east coast Australian ports to Port Moresby, Lae, Alotau, Madang, Wewak, Rabaul, Kavieng-Kimbe, Kieta, Honiara, Vila, Santo.

Details from Burns Philp & Co Ltd, PO Box R124, Royal Exchange, Sydney (20 547); Nedlloyd Swire, 8 Spring St, Sydney (20 522); New Guinea Express Lines, 37 Pitt St, Sydney (241 3991); Vila Agents PO Box 27, Port Vila (2456), Tlx NH1011.

New Guinea Express Lines operates a weekly container service from Melbourne, Sydney, Brisbane to Port Moresby, Lae, Alotau, Kimbe, Rabaul, Kieta, Honiara, Kavieng, Madang, Wewak, Santo, Vila.

Details from New Guinea Express Lines, PO Box R73, Royal Exchange Sydney (241 3991); 127 Creek St, Brisbane (221 9333); 84 William St, Melbourne (602 5544); Port Moresby (21 4572); Steamships Trading (agent), Rabaul (92 1400); Bougainville Agencies Pty Ltd Kieta, (95 6089); Steamships Trading Co, Madang (82 2446); Graumut Enterprises, Wewak (86 2106); Burns Philp (PNG) Ltd, Kavieng (94 2133); Alotau Stevedoring and Transport, Alotau (61 1318); Ngatia Wholesalers Pty Ltd, Kimbe (93 5102) and Tradco Shipping, Mandana Avenue, Honiara (22 588); Vila Agents Ltd, PO Box 971, Vila, Vanuatu (2490); John Lum & Associates, PO Box 65, Santo, Vanuatu (329).

EUROPE — TAHITI — NEW CALEDONIA — VANUATU

The Bank Line and Columbus Line operate a regular joint cargo service from Hamburg, Bremen, Antwerp, Rotterdam and Le Havre to Papeete, Noumea, Port Vila and Santo.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; Ets A.M. Fare UTE, Papeete; Ets Ballande, Noumea and other local agents.

EUROPE — PNG — SOLOMONS

The Bank Line & Columbus Line operate a regular joint cargo service from Hamburg, Bremen, Antwerp, Rotterdam and Le Havre to Port Moresby, Lae, Madang, Kimbe, Rabaul, Kieta and Honiara and on inducement to Yandina.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

EUROPE — WESTERN SAMOA — TONGA — FIJI

The Bank Line & Columbus Line operate a regular joint cargo service from Hamburg, Bremen, Antwerp, Rotterdam and Le Havre to Apia, Nuku'alofa, Suva and Lautoka.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

SINGAPORE — HONG KONG — FIJI ISLANDS PORTS

Kyowa Shipping Co Ltd operates a monthly containerised and break-bulk cargo service from Hong Kong to Lautoka, Suva and then to island ports.

Details from Carpenters Shipping, Private Mail Bag, GPO Suva, Fiji (31 2244); Fax: (679) 301 572. Tlx FJ2199.

FAR EAST — FIJI — NEW ZEALAND

New Zealand Unit Express (NZUE) operates a monthly service accepting containerised and break-bulk cargo from Manila, Keelung, Kaohsiung and Hong Kong to Lautoka, Suva and thence to New Zealand ports.

Details from Carpenters Shipping, Private Mail Bag, GPO Suva, Fiji (31 2244); Fax: (679) 311 572; Tlx FJ2199; Burns Philp, Suva (311 777); New Zealand Unit Express, Maritime Building, 2-10 Customhouse Quay, PO Box 890, Wellington (727 865), Cables ENZUEMAN WELLINGTON, Tlx NZ31340, NEDLNZ, or Nedlloyd Swire Pty Ltd, Sydney (20 522).

FAR EAST — MID SOUTH PACIFIC

China Navigation's New Guinea Pacific Line operates a regular container and Break

YOUR DIRECT EUROPEAN CONNECTION



EUROPE-SOUTH PACIFIC JOINT SERVICE

The South Pacific Specialists offer facilities for shipment of:
Containers (FCL/LCL) and Break-bulk Cargo plus reefer space and deep tanks for carriage of vegetable oils and other liquid bulk cargo.

Carriers also accept heavy lifts, overlength and cumbersome parcels.



Ports of Service:

Loading: Papeete, Apia, Suva, Lautoka, Noumea, Port Vila, Santo, Honiara, Port Moresby, Lae, Madang, Kimbe, Rabaul, Kieta, Darwin.

For: Rotterdam, Antwerp,

Hamburg, Hull, Dunkirk, Le Havre.

Additional ports on enquiry.



Please contact our regional offices for further information:

The Bank Line (Australasia) Pty Ltd
Ground Floor Telex AA24063
53 Martin Place Telephone (02) 223 6255
Sydney NSW 2000 Facsimile (02) 223 6549

Columbus Line Reederei GmbH
P.O. Box 1667
Lae/Papua New Guinea
Phone: 42 3466/42 3287
A.H. 42 2481
Telex: Colline NE 44 171

THE BANK LINE LTD LONDON
COLUMBUS LINE REEDEREI GMBH HAMBURG

COL0024

Bulk-Heavy Lift service from Hong Kong, Taiwan, Manila, Singapore, Malaysia, Thailand to Port Moresby, Lae, Rabaul, Kieta and Honiara with 18 days frequency. Wewak and Madang will receive four direct calls a year or more on inducement. A T/Service via Lae to these and other PNG ports connecting with monthly sailings is available at cost. Cargo from the same Eastern ports to the South Pacific ports of Noumea, Santo, Vila, Papeete, Pago Pago, Apia, Nuku'alofa, Rarotonga and Tarawa will be shipped via Japan or Busan on the monthly Bali Hai service.

Details from Steamships Shipping, PO Box 634, Port Moresby (220 283 or 220 289).

Kyowa Shipping Ltd operates monthly services from Japan to Guam, Saipan, Solomons, New Caledonia, Fiji, Western and American Samoa, Tahiti, Cook Islands, Tonga and Vanuatu.

Details from Hetherington Westfarmers Shipping Agency, 37-49 Pitt St, Sydney (223 1600); Carpenters Shipping, Suva (312 244); Tlx FJ2199.

GUAM — NORTHERN MARIANAS

Saipan Shipping Co operates a weekly service via barge carrying containers and conventional cargo between Guam and Saipan and Tinian.

Details from Saipan Shipping Co, Inc, PO Box 8, Saipan CM 96950 (322 9706 or 322 9707). Tlx 783619, Fax (670) 322 3183; Guam agents Maritime Agencies of the Pacific Ltd.

HAWAII — SAMOAS — TONGA — COOK ISLANDS

Hawaii-Pacific Lines operates a monthly container service between Honolulu, Pago Pago, Apia, Nuku'alofa and Avatiu (Rarotonga).

Details from Hawaii-Pacific Maritime, Inc., PO Box 3264, Honolulu HI (9680)-32641 (808 531 4841).

Details from Morris Hedstrom Samoa Ltd, PO Box 189, Apia, Western Samoa (21 355, 22 722).

Tlx 224 MORISHED SX). Fax 24 279; Union Citco Travel Ltd, Rarotonga, Cook Islands (682 21 780); Tlx 62024 (UTRAV G); Fax (682) 20 859; Kneubuhl Maritime Services, PO Box 39, Pago Pago, American Samoa 96799, (684 633 5121); Tlx 782505; Fax (684) 633 5100; Union Maritime Services Ltd, PO Box 4 Nuku'alofa, Tonga (21 644/5); Tlx 6627, Fax (676) 21 645.

JAPAN — FIJI — ISLAND PORTS

Kyowa Shipping Co-operates a monthly containerised service from main ports of Japan to Suva, Lautoka, thence to island ports.

Details from Carpenters Shipping, Neptune House, 3/4 Floor, Tofua St, Walu Bay, Suva (31 2244), Fax (679) 301 572 Tlx FJ2199.

JAPAN — MICRONESIA

The NYK Shipping Line operates a monthly cargo service from Japan to Micronesia, calling at Yoko, Nagoya, Kobe, Guam, Saipan, Truk, Ponape and Majuro, returning via Yoko, Nagoya and Kobe.

Details from Burns Philp & Co Ltd., 51 Pitt St, Sydney (259 1000).

Saipan Shipping Co operates a monthly service from Japan to Saipan, Guam, Truk, Ponape, Majuro (Kosrae and Ebeye on inducement).

Details from Saipan Shipping Co, PO Box 8, Saipan, CM 96960 (322 9706 or 322 9707), Tlx 783619, Fax (670) 322 3183.

Japan agents Kyowa Shipping Company Ltd; Guam Agents Maritime Agencies of the Pacific Ltd.

JAPAN — KOREA — PNG — PARADISE SERVICE

Mitsui OSK Lines operates a monthly service from main ports in Japan, Wewak, Lae, Rabaul, Kieta, Port Moresby.

Details from Robert Laurie Company (PNG) Ltd, PO Box 1032, Lae (42 3642, 42 3811).

Contact: W O Hackenberg, Group Shipping Manager.

JAPAN — KOREA — PNG — PARADISE SERVICE

Mitsui OSK Lines in joint service with NYK Lines operates a monthly service from main ports in Japan and Busan in Korea to PNG — ports of Wewak, Rabaul, Kieta, Lae, Port Moresby, Kavieng, Kimbe, Madang and Oro Bay.

Details from Robert Laurie Company Pty Ltd, PO Box 1032, Lae (direct: 423 642 or a switch: 423 811). Contact W O Hackenberg, Group Shipping Manager & Marketing; Tlx NE 42508 Fax 423 801.

JAPAN — KOREA — FIJI — ISLAND PORTS

Bali Hai Service operates a monthly and general cargo and vehicle service from main Japanese ports and Korea to Suva, Lautoka, Apia, Pago Pago, Papeete, Nuku'alofa, Noumea, Vila, Santo and Honiara.

Details from John Swire and Sons (Japan) Ltd, 14 Ichibancho, Chiyoda-ku, Tokyo (03) 230 9220; Tlx J22248, Fax (03) 230 9288.

PNG — INTER-MAINPORT

Papua New Guinea Lines offers scheduled 10-20 day coastal liner services linking all PNG major ports with containerisation, reefer, heavy lift and trans-shipment facilities.

Details from PNG Line, Box 543, Port Moresby (211 174), Tlx 22269.

PNG — TAIWAN — HONG KONG — SINGAPORE — INDONESIA

The Bank Line & Columbus Line operates a regular joint cargo service from PNG Ports to Kaohsiung, Hong Kong, Singapore, Jakarta & Surabaya.

**YOU'LL FIND IT,
WHERE THE SKY MEETS
THE SEA**



**FIJI
TONGA
KIRIBATI
VANUATU
COOK ISLAND
SOLOMON ISLANDS
NEW CALEDONIA
U.S. SAMOA
WESTERN SAMOA
FRENCH POLYNESIA
JAPAN . KOREA**

**RORO, CONTAINER &
B.BULK SHIPPING**



AGENTS and PHONE

SUVA: Burns Philp(B.P) 311777 Carpenter Shipping (C.S) 312244 **LAUTOKA:** B.P 60777 C.S 63988 **APIA:** B.P 22611 **PAGOPAGO:** Polynesia Shipping Services Ltd. 633-1211 **PAPEETE:** Compagnie Maritime Polynesienne 42 84 02 **NOUMEA:** Etablissements Ballande 687-283384 **VILA:** B.P2456 **SANTO:** B.P230 **HONIARA:** Sullivans (Solomon Islands) Ltd 21645 **TARAWA:** Shipping Corporation of Kiribati 26195 **NUKUALOFA:** B.P 21500 **BUSAN:** for general cargo Young Chang Shipping Co., Ltd. 753-0451 for vehicle Pan Continental Shipping Co., Ltd. 778-7680 **Soyang Shipping Co., Ltd** 752-7755 **JAPAN:** for general cargo Swire 03-230-9245 for vehicle NYK Lines 03-284-5506 Mitsui O.S.K 03-587-7123

Details from The Bank Line (A'asia) Pty Ltd, 51 Pitt St, Sydney (251 6688), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

PNG — UK / CONTINENT

The Bank Line and Columbus Line operate a regular joint service from Port Moresby, Oro Bay, Kieta, Rabaul, Kimbe, Madang and Lae to Hull, Hamburg, Rotterdam, Antwerp and Le Havre.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

SOLOMONS — UK / CONTINENT

The Bank Line and Columbus Line operate a regular joint cargo service from Honiara to Hull, Hamburg, Rotterdam, Antwerp and Le Havre.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

SOLOMONS — UK / CONTINENT

The Bank Line and Columbus Line operate a regular joint cargo service from Honiara to Hull, Hamburg, Rotterdam, Antwerp and Le Havre.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; Tradco Shipping Ltd., Honiara (22 588); Tlx 66 313.

NEW ZEALAND — AUSTRALIA — PNG — SOLOMON ISLANDS

Pacific Forum Line operates a containerised and ro-ro service from Lyttelton, Napier and Auckland to Brisbane, Port Moresby, Lae, Honiara, Brisbane then to New Zealand.

Details from Pacific Forum, Auckland, Christchurch; Union Bulkships, Brisbane; Steamships Shipping, Port Moresby and Lae Sullivan Ltd, Honiara; Seabridge, Wellington.

NEW ZEALAND — COOK ISLANDS — TAHITI

New Zealand Line operates cargo services based on pallets and similar units from Auckland to Cook Islands and Tahiti.

Details from NZ Shipping Agencies International Ltd, PO Box 3420, Auckland (392 650), Waterfront Commission, PO Box 61, Rarotonga, Cook Islands; Shipping Office, Govt of Niue, PO Box 107, Niue Island; Compagnie Maritime Polynésienne, PO Box 36, Papeete, Tahiti.

NEW ZEALAND — FIJI

Reef operates a regular 18-day service from Auckland to Suva and Lautoka. Also passenger accommodation.

Details from Reef Shipping Agencies, PO Box 3382, Auckland (771 2213), Tlx 60633; MV Fijian Shipping Agencies Ltd, Private Bag, Suva (311 056).

Pacific Line with one ship operates a three-weekly ro-ro cargo service New Zealand, Lautoka, Suva. No passengers.

Details Sofrana Unilines, 18 Customs St, Auckland (773 279); PO Box 3614, Tlx NZ2313, Carpenters Shipping, Neptune House, Tofua St, Walu Bay, Suva (25 141), Tlx FJ2199.

NEW ZEALAND — FIJI — NORTH AMERICA (WC)

Blue Star Line Ltd Pacific Coast container services; only direct service to and from New Zealand. Blue Star vessels call at Suva and Honolulu on NZ-US West Coast voyages.

Details from Blueport ACT (NZ) Ltd, PO Box 192, Wellington (739 029); Burns Philp (SS) Co Ltd, GPO Box 355, Suva (311 777), Tlx FJ2168 Burnship.

NEW ZEALAND — FIJI — SAMOAS — TONGA

Pacific Forum Line operates a containerised and ro-ro 21 day service from Auckland to Lautoka, Suva, Apia, Pago Pago and Nuku'alofa.

Details from Pacific Forum Line, Auckland, Christchurch, Suva and Apia; Union Maritime, Lautoka, and Nuku'alofa, Polynesian Shipping, Pago Pago.

NEW ZEALAND — TONGA — SAMOAS

Warner Pacific Line Services from Auckland to Nuku'alofa, Vava'u, Apia, Pago Pago monthly carrying general and freezer cargoes and FCL Dry Freezer.

Details from McKay Shipping Ltd, 2nd Floor, Ferry Bldg, Quay St., Auckland PO Box 3 (390 229). Cables MACSHIP, Tlx NZ2554; Warner Pacific Line, Box 93, Nuku'alofa, Tonga; Mealelele (Western Samoa Ltd) Private Bag, Apia, Western Samoa; Burns Philp (SS) Co Ltd, PO Box 129, Pago Pago, American Samoa (633 2709), Burnsouth SB.

NZ — COOK ISLANDS — AITUTAKI — NIUE

Cook Islands Line services Auckland, Rarotonga, Aitutaki, Niue monthly carrying general and freezer cargoes.

Details from McKay Shipping Ltd, 2nd Floor, Ferry Bldg, Quay St., Auckland/PO Box 3, Auckland (390 229). Cables MACSHIP, Tlx NZ2554; Fax 32 931.

SOUTHEAST ASIA — FIJI

Nedlloyd Lines (NZEAS) Service operates regular fast cargo service from Surabaya, Jakarta, Port Kelang, Bangkok and Singapore via New Zealand to Suva and Lautoka. Details from Carpenters Shipping, Neptune House, 3/4 Floor, Tofua St., Walu Bay, Suva (312 244). Fax: (679) 301 572. Tlx: FJ2199.

TAHITI — NEW CALEDONIA — VANUATU — SOLOMON ISLANDS — NEW ZEALAND — PNG — SINGAPORE — EUROPE

Polish Ocean Lines operates semi-container type vessels to the following ports: from Papeete, Noumea, Santo, Vila, Yandina, Honiara, Auckland, Singapore, Port Kelang, Penang then to Mediterranean ports and Europe via the Suez Canal (other New Zealand ports subject to inducement).

Details from Universal Shipping Agencies Ltd, 7th Floor, 14 Emily Pl, Auckland 1 (390 931, 390 727, 32 104), Tlx 21 517.

TAIWAN — HONG KONG — SINGAPORE — INDONESIA — PNG

The Bank Line & Columbus Line operate a regular joint cargo service from Kaohsiung, Hong Kong, Singapore, Jakarta, Surabaya to Papua New Guinea Ports.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

EUROPE — TAHITI — W SAMOA — FIJI — NEW CALEDONIA

Compagnie Generale Maritime operates services from Europe and Mediterranean ports to Papeete and Noumea using three ro-ro and multi-purpose vessels thus ensuring a bi-monthly sailing to and from.

Details from Compagnie Generale Maritime, 12 Castlereagh St, Sydney (231 3700).

EUROPE — TAHITI — NEW CALEDONIA — NEW ZEALAND — VANUATU — SOLOMONS — PNG — EUROPE

Polish Ocean Lines offers regular monthly sailings for containerised and break-bulk cargo, also conventional reefer space and reefer containers from Hamburg, Rotterdam, Dunkirk, Le Havre to Papeete, Noumea, Auckland, Santo, Honiara, Rabaul, Lae, Singapore, returning to Europe via Suez. Other ports in the South Pacific can be served directly with inducement or otherwise via transhipment.

Details from Sotama, BP 9170, Papeete (42 7805), Tlx Sotama 373FP; SATO, BP, 02 Noumea Cedex (27 2094), Tlx 163NM; Universal Shipping Agencies, PO Box 2282 Auckland (30 930), Tlx 21517; Vanua Navigation, PO Box 44, Vila (2027), Tlx 1033; Melan Chine Shipping Co, PO Box 71, Honiara (21 678). Tlx 66335; Steamships Trading Co Ltd, PO Box 85, Lae (42 4666). Tlx 4243; Union Steamship Co NZ Ltd, PO Box 50, Apia (21 781); Tlx 226; Warner Pacific Line, PO Box 93, Nuku'alofa (22 088), Tlx 66219; Fiji Agents TBA.

EUROPE — TAHITI — NEW CALEDONIA

Nedlloyd offers regular cargo services from Continental ports to Papeete, Apia, Fiji and New Caledonia.

Details Nedlloyd (Aust) Pty Ltd, Spring St., Sydney (27 3801); Carpenters Shipping, 1st Floor, Harbour Centre Bldg, 100 Thomson St., Suva (31 2244), Tlx 2199FJ and Vetari St., Lautoka (63 988), Tlx 5215FJ.

UK — WESTERN SAMOA — TONGA — FIJI

The Bank Line and Columbus Line operate a regular joint cargo service from Hull, to Apia, Nuku'alofa, Suva and Lautoka.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

UK — PNG — SOLOMONS

The Bank Line and Columbus Line operate a regular joint cargo service from Hull to Port Moresby, Lae, Madang, Kimbe, Rabaul, Kieta and Honiara and on inducement to Yandina.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; or lines' local agents.

UK — TAHITI — NEW CALEDONIA — VANUATU

The Bank Line and Columbus Line operate a regular joint cargo service from Hull, to Papeete, Noumea, Port-Vila and Santo.

Details from The Bank Line (A'asia) Pty Ltd, 53 Martin Place, Sydney (223 6255), Tlx AA24063; Columbus Line, Lae (423 466), Tlx NE44171; Ets A.M. Fare UTE, Papeete; Ets Ballande, Noumea and other local agents.

US — HAWAII — MICRONESIA — PNG

PM&O Lines operate two fully self-contained container vessels on a sailing frequency of every 30 days between the San Francisco Bay Area, Los Angeles, Honolulu and Majuro, Ebeye, Kosrae, Ponape, Truk, Saipan, Yap, Palau, Cebu, Davao, Manila, Lae, Kieta and Rabaul.

Details from PM&O Lines, 353 Sacramento St., San Francisco, California 94111 (415 421 5400); Tlx: 278016 PMO UR; Owner's Representative, PO Box 803, Saipan, NMI 96950 (234 8819); Tlx 783605 CMCAA.

OUT OF THE PAST

HMS *Bounty*: the bloodless mutiny

Sven Wahlroos looks behind the history to find the men and the motives, 200 years ago.

WE HAVE arrived at the mutiny on the *Bounty*'s own bicentenary. It was on Saturday April 4, 1789, that the *Bounty* weighed anchor and sailed out from Toaroa harbour in Tahiti. On board were 1015 breadfruit plants in 774 pots, 39 tubs and 24 boxes, samples of other South Seas plants, 25 hogs, 17 goats and a number of chickens. As if that weren't enough, the deck was crowded with last-minute gifts from Tahitian *taios* (special friends): coconuts, plantains, breadfruit, yams, bananas and so on. The *Bounty*, having been overcrowded, was now bursting at the seams.

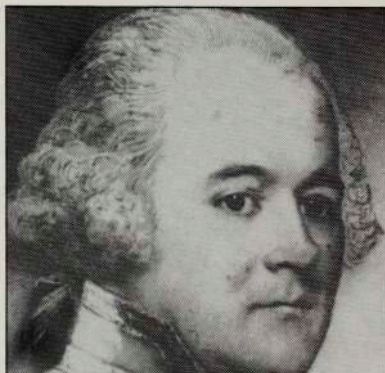
On April 23 the *Bounty* arrived at Nomuka, 1800 miles west of Tahiti primarily to replace one dead and two or three "sickly looking" breadfruit plants . . . out of 1015. He also wanted to "wood and water" less than three weeks after leaving Tahiti.

But the visit to Nomuka has far greater significance, for it was during and immediately after this stop that the incidents which triggered the mutiny occurred.

Bligh and his second-in-command, Fletcher Christian, had been friends on two previous voyages. Christian was the only one of the officers that Bligh trusted — indeed, Bligh promoted him to his second-in-command soon after the *Bounty* left England — but in Capetown a quarrel started between them and it was to fester throughout the voyage. Still Bligh gave Christian the most important assignment in Tahiti: full command over shore operations.

Perhaps Bligh was jealous of bachelor Christian's popularity with the Tahitian women when he himself felt bound by his marriage vows to stay chaste, but whatever its causes, the conflict between Bligh and Christian was greatly exacerbated on the voyage from Tahiti, to the point that Christian during the mutiny told Bligh: "I have been in hell with you for weeks."

Bligh was definitely at his worst on the voyage from Tahiti: fault-finding, insulting, petty and condescending. He seems to have relished humiliating all his officers, and it is clear that he went out of his way to torment Christian. At Nomuka, Bligh sent Christian in command of a shore party with orders not to use any weapons but to leave them in the boat. When Christian encountered hostile Tongans who threatened him and his party with



William Bligh: placed his friend Fletcher Christian in an intolerable situation . . . with famous results.

spears, clubs and rocks, he had to retreat to the boat, losing an adze to thieving Tongans.

On hearing of the incident, Bligh damned Christian for a "cowardly rascal", asking if he were afraid of "a set of naked savages while he had arms". Christian replied: "The arms are no use while your orders prevent them from being used." Not only was Bligh putting Christian in an intolerable situation (damned if you do use arms, damned if you don't), but a gentleman simply did not call another a coward: in England, the insult could well have resulted in a duel.

Only two days later, on April 27 (the day before the mutiny), Bligh accused Christian — in front of the ship's company — of stealing some of his coconuts, this time calling him a thief and a hound.

Christian came from 25 generations of aristocracy, and none of his forefathers would have allowed themselves to be called cowards or thieves without "demanding satisfaction".

Yet Christian's first reaction was to get away from Bligh at any cost. At this point he had obviously lost his judgment: he was trying to construct a raft from a few spare spars and planks in order to leave the ship!

During the night between April 27 and 28, Christian probably had very little sleep. There are some indications that he had been drinking, but when he was awakened for his 4am to 8am watch he felt his head "was on fire" . . . and he made the impulsive decision to seize the ship. The fact that the most discontented seamen were on his watch probably helped trigger his action: he found little difficulty in recruiting accomplices.

Bligh later claimed that there had been a conspiracy to mutiny ever since the *Bounty*'s stay in Tahiti. He may be partly correct; it is difficult to imagine that the idea of mutiny would not have arisen among the crew: three had deserted (and been recaptured) in Tahiti, but it is highly unlikely that a definite plan to mutiny existed; the events during the takeover of the ship were simply too confused and haphazard for that to have been the case.

Space does not permit us to detail the actual mutiny here, and it has already been portrayed with various degrees of accuracy in fiction and in five feature films. Suffice to say that Christian and 10 of his shipmates — out of a complement of 44 — managed to take over the vessel and set Bligh and 18 loyalists (some had to stay on board, so as not to further overload the ship's launch) adrift in the Pacific thousands of miles from any European settlement.

A few points, however, are often overlooked about the mutiny. One is that it is one of the few bloodless revolts in history: the harshest action (apart from setting the loyalists adrift) was that Bligh's wrists were bound hard enough to cause him pain. Most of the violence, in fact, was verbal, and much of it came from Bligh, though the mutineers certainly did a good deal of threatening.

Another point illustrates — one might almost say proves — that the mutiny was not planned: three boats were launched: the jolly boat, which was found to be rotten with worms, and would certainly have sunk; the cutter, which also leaked and simply would not hold the large number of loyalists who preferred to go with Bligh; and the launch.

The third point — and I have never before seen it raised — is that the poor condition of the ship's boats in itself illustrates the slack discipline that had obtained during the stay in Tahiti. Not only had the new sails been allowed to rot, but two of the ship's boats had not been inspected and were certainly in no condition to be used in an emergency.

When Bligh had been forced into the launch together with his comrades, the freeboard remaining was less than the length of a man's hand! The boat was designed for a maximum of 15 men and for short distances, not for 19 men with belongings and supplies destined to sail four thousand miles. □

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