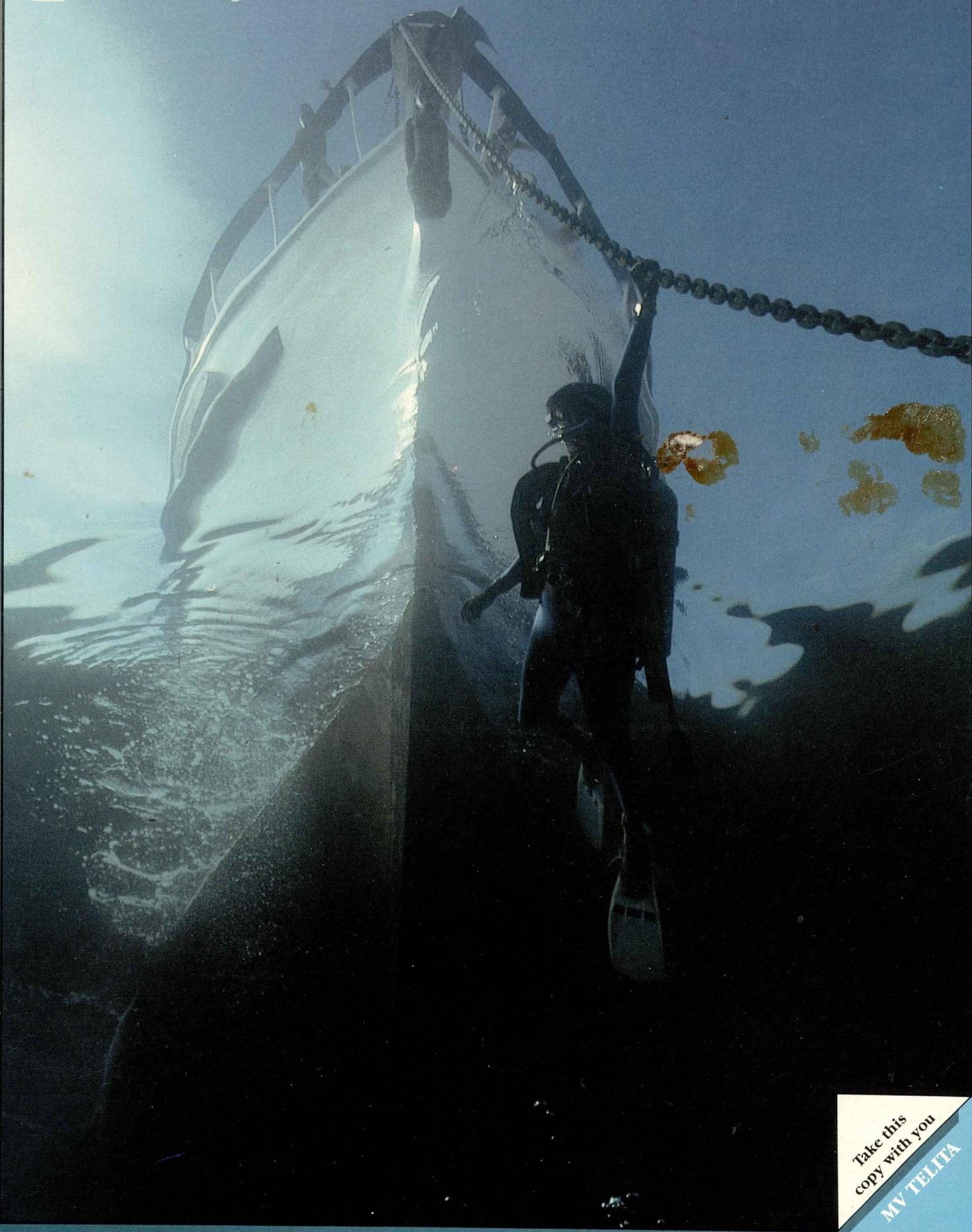


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MV TELITA



DRAKKAR
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Guy Laroche
Paris

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La douce violence
d'un parfum d'homme.



paradise

No 65 Nov-Dec 1987

Paradise is published bi-monthly by Air Niugini. PO Box 7186, Boroko, Papua New Guinea (telephone 273415; telex NF22235).

Welcome aboard,

Recently a dream came true for Bob and Dinah Halstead with the entry into service of the MV Telita, their specialised charter dive boat built in PNG of PNG timbers. Bob and Dinah are divers who conduct tours throughout PNG waters for visiting divers and the systematic exploration of our waters where startling discoveries are made similar to the recently sighted midget submarine off the New Ireland coast.

Join the students of the National Arts School textile department who demonstrated their talents at a recent textile and design fashion show. The pictures were taken in an exciting setting within Varirata National Park.

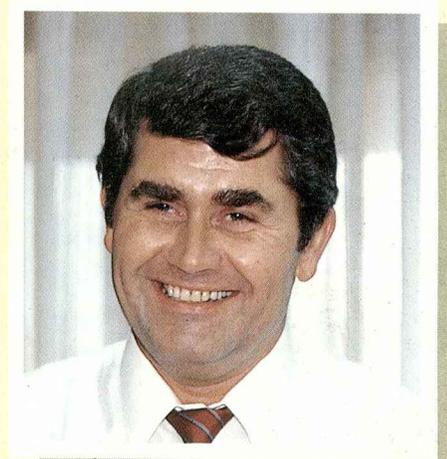
Enjoy your flight.

Dieter Seefeld
General Manager

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Cover: Sea and sky merge in underwater view of dive boat MV Telita.



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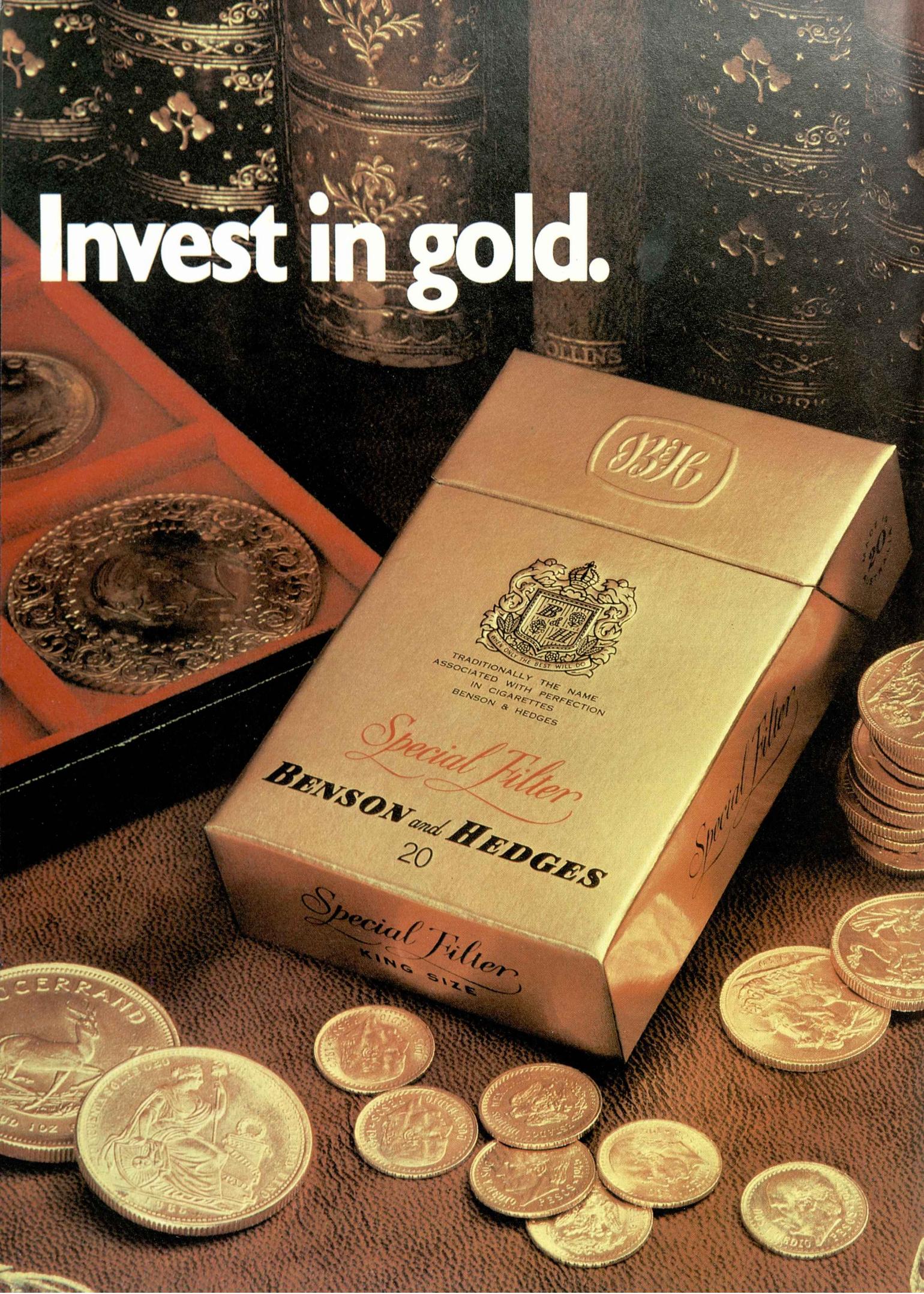
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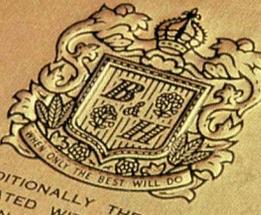
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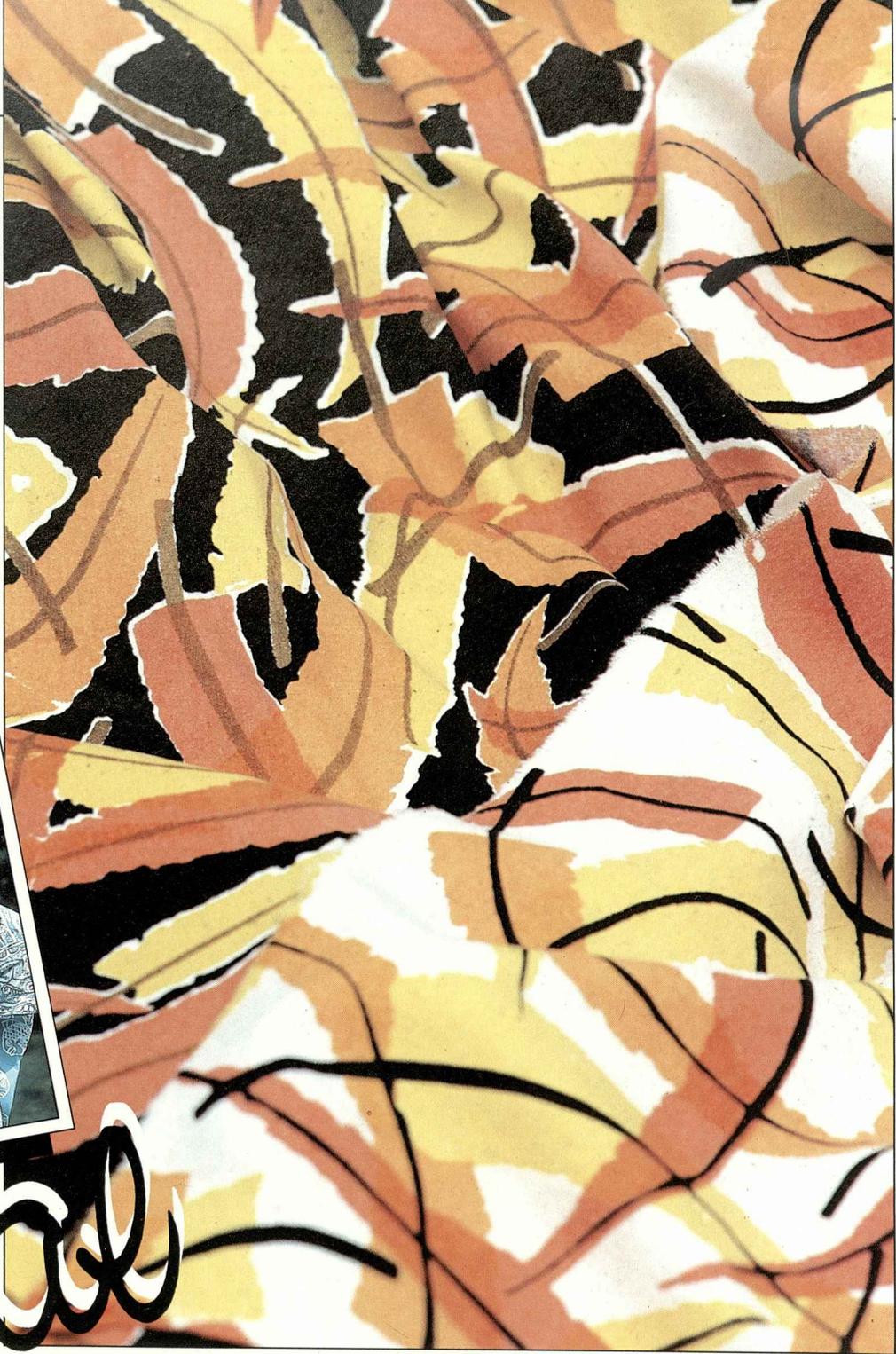
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Right Gaten Baskai's feather design in earth colors make bold patterns for a bolt of cloth. **inset** A reversible coat by Rose Koch has a fish motif in a design based on a traditional storyboard.



local

COLOR

Story by Jill Kinnear. Photographs by Carole Barnatt

The fashion show by the National Arts School was not a quiet affair, nor was it typical of fashion shows. The National Theatre, the venue, echoed to the sound of kundu drums and flutes as the Papua New Guinean models swayed and danced in modern fabric versions of their traditional dress.

The fashion show was the culmination of months of work by first, second and third year students of the school's textile department. Screen printing,



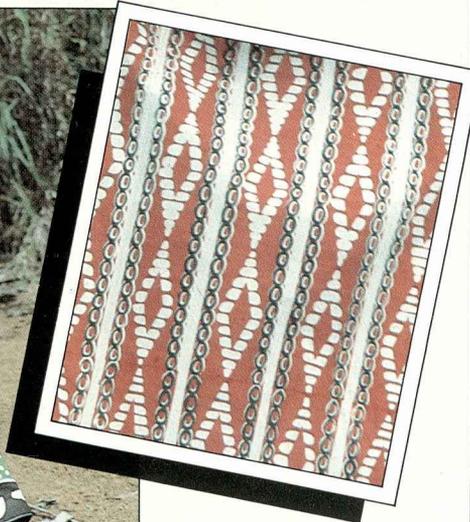
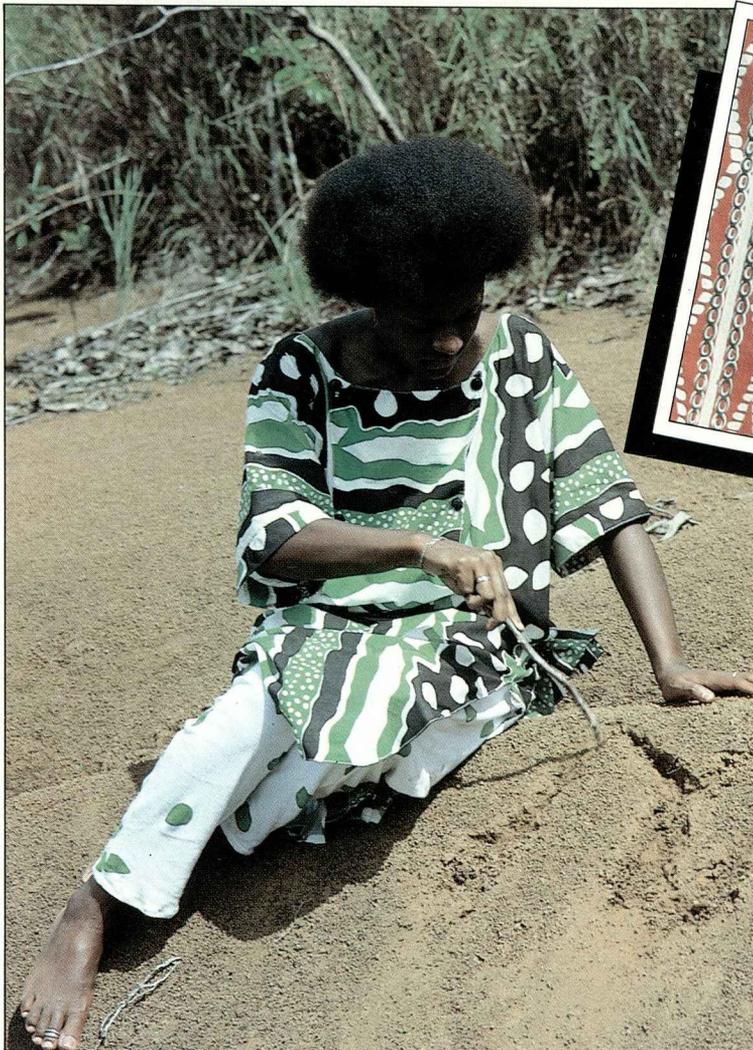
hand painting, batik and other textile techniques were used to produce the clothes. The imaginative efforts extended to hats, armbands, hair decorations, scarves and props for the show. The artwork for catalogues and invitations was also produced by the students.

As the fashion show successfully demonstrated, textile design is an exciting, versatile form of decorative art. In PNG, it is an obvious and natural channel for the wealth of traditional images found in the country's culture.

In the styles fashioned by the textile department, a concentrated effort is made to retain and accentuate the shapes of traditional garments. The designs reveal inspirations such as toea shells, shields, drums, the patterns of grass skirts, stamped and painted images from body and face painting, headdresses, feathers, animals from storyboards, Trobriand Islands celebration, bilums, wood carving, pottery and masks.

All this comes from the vivid imaginations of future national designers of PNG. Projects set during the three-year diploma course aim at encouraging the continuity of the country's traditional decoration in a new and vital form. The course comprehensively teaches many technical processes and produces original, competent, versatile and professional designers.

The textile department tries to maintain and improve an international standard of design, necessary to compete with the great influx of designs from overseas. As well as



Left page John Moseury used black and red on yellow for a cotton suit and hat and a silk scarf. **inset** A printed design by Rose Koch. **This page, top left** Shields were the inspiration for Balide Katit's hand-painted dresses. **top right** Jack Eki's tops and trousers were also hand-painted. **bottom left** Two-color co-ordinates by Henry Iyaro. **inset** Jack Kauken's fabric design for a coat.

attracting sales from the increasing number of visitors to the country, there is a vast local market for textiles. The industry can retain and use the traditional culture while acting as an additional boon to tourism.

All this needs organisation and support. The textile department encourages and creates opportunities for its graduates, making contacts throughout PNG to encourage the establishment of print workshops. Not only T-shirts are printed but a more ambitious and profitable form of printing produces what both local people and overseas visitors want: original designs of a high standard, in furnishing and fashion fabrics for clothes, cushions, scarves and also jewellery.

Funding, enthusiasm and support are necessary from the Government and local people. Tiare Designs in Arawa has employed Gatien Basakai, who graduated from the school last year, and the company is already benefitting from his knowledge, skill and new designs. Wendi Chou-lai, another 1986 graduate, received much overseas acclaim for her textile entry in the Commonwealth Arts Festival. She is now preparing exhibitions for Sydney and Paris, and her Commonwealth entry will be shown again in London.

The work of the textile department has also caught the interest of international photographers, advertising agencies and magazines. With support, the possibilities are endless.

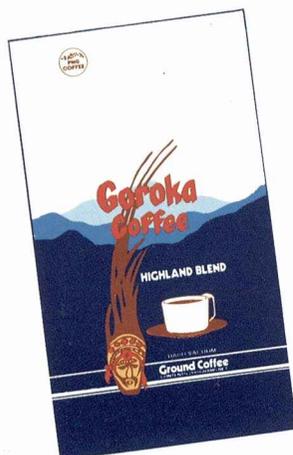
PNG is changing fast and too often traditions and opportunities are lost before their value is realised. They do not have to die — they can survive in different ways. If new ideas can be accepted with imagination and a positive attitude, then a strong, indigenous and joyful direction for contemporary textiles in PNG is possible. Those who saw the fashion show know this is true.



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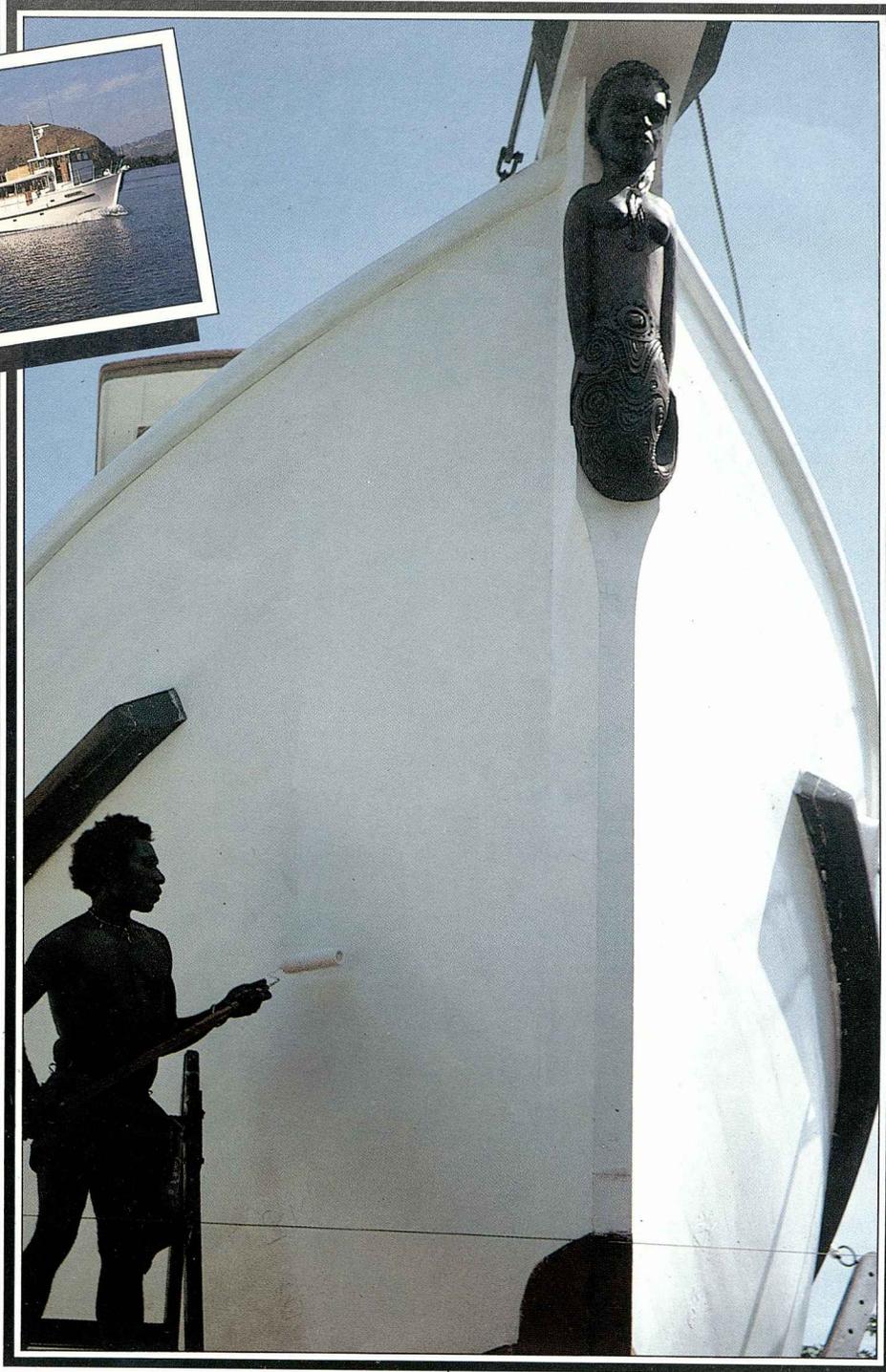
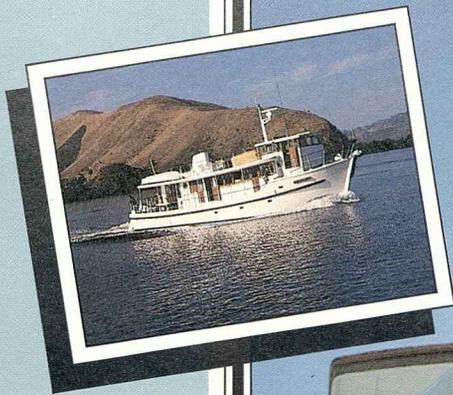


Goroka Coffee

from the Highlands
of Papua New Guinea

MV TELITA

Story and photographs by Bob Halstead



The craftsmanship and artistry of Papua New Guinea's wood carvers and shipwrights have always enthralled visitors to our exciting country. At the turn of the century, enlightened missionary Charles Abel used his flock's natural talents in woodworking to start a small boat-building school at the mission at Kwato Island in Milne Bay. A

small number of clinker whale boats and dinghies was constructed mainly for the mission's use, before pressure from within the church sought to restrict his work to conversion of Papuans to Christianity.

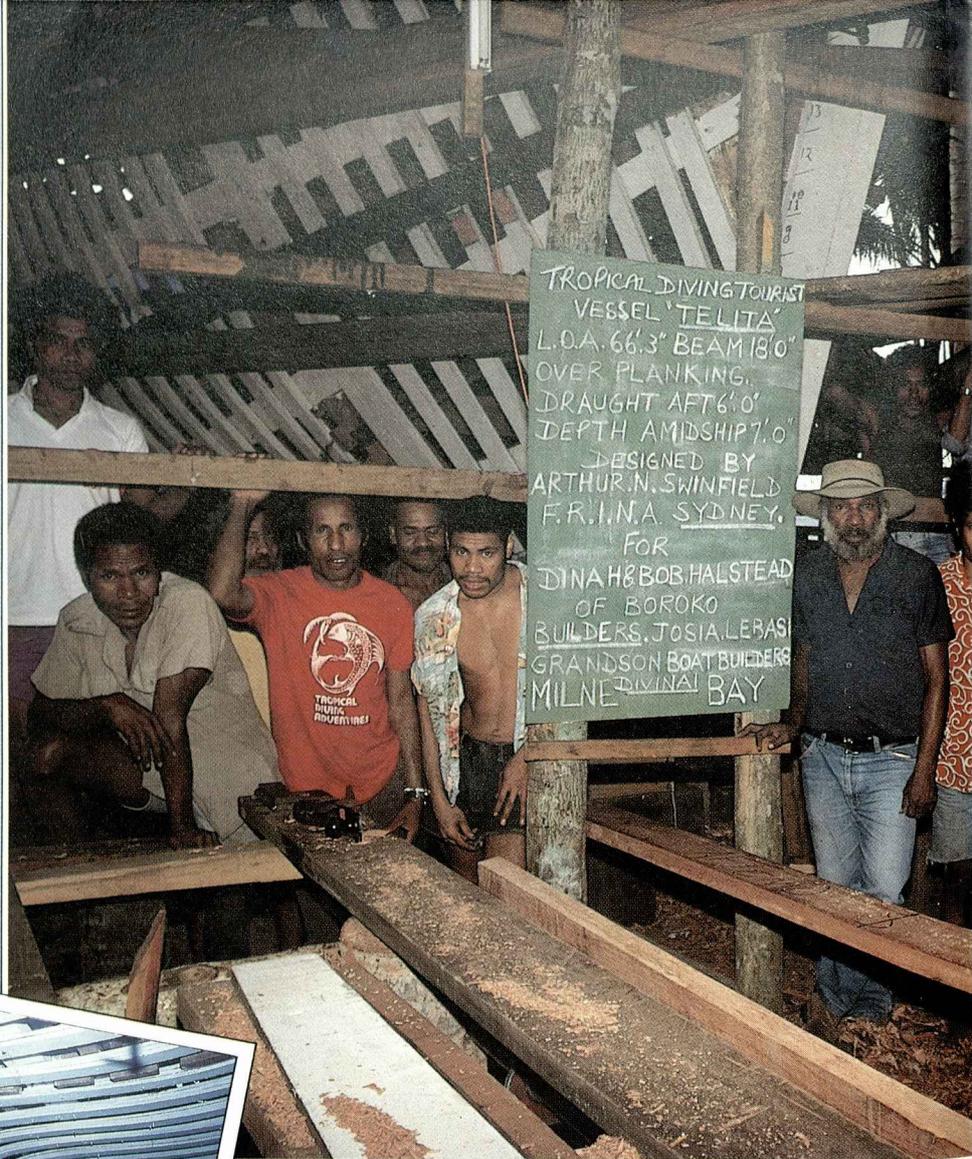
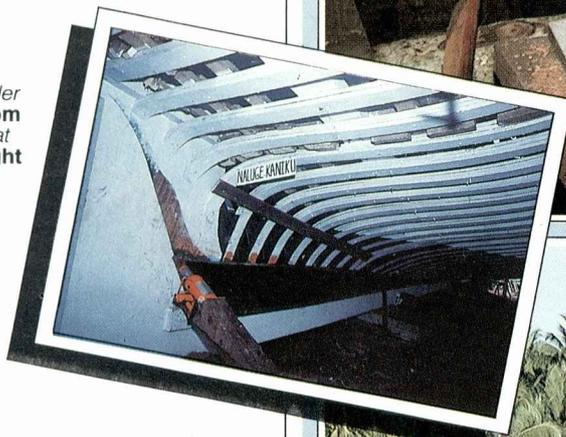
Although Charles Abel eventually won approval to operate his special mission, it was Governor Sir Hubert Murray in the 1930s who built on

MV Telita's finely carved figurehead watches over the painting of her hull. inset A fitting tribute to PNG craftsmanship, the vessel heads out to sea.

this small beginning to establish a boat-building industry in Milne Bay. He recruited young naval architect and shipwright Arthur Swinfield to work as a government technical officer to work at Kwato.

Arthur Swinfield was a gifted teacher as well as a boat builder. Before long Kwato was not only building boats for the mission's use but his team of shipwrights was commissioned by local trading companies to produce sail and diesel work boats, for inter-island trade, and to make repairs to their fleets. Arthur also designed, and Kwato shipwrights built, the first fleet of racing dinghies for the Royal Papuan Yacht Club which previously raced sailing canoes. In 1937 construction was completed on the first 18-metre vessel to be built in PNG, the Kwato II, later named the Motuana, which served in coastal trade in PNG for more than 45 years.

Inset MV *Telita* under construction. **bottom left** The boatshed at Divinai. **bottom right** Master boatbuilder Douglas Lebasi.



In World War II Arthur returned to Australia to supervise the design of timber work boats for the Australian Forces. The 12-metre work boat built at this time was one of Arthur's designs. Many of these much-loved craft can still be seen as cargo and passenger carriers or pleasure craft, cruising PNG's waters.

Arthur was not surprised when my wife Dinah and I telephoned him at his Sydney home, shortly before his 80th birthday, to tell him we wanted to build an 18-metre timber ship at Milne Bay, employing the grandchildren of the shipwrights he had trained at Kwato. Arthur had held a strong conviction he had "unfinished





Left The boatbuilders of Milne Bay. inset Work on the hull.

business" in PNG and had dreamed of a project like ours that would round off his career. His Papuan shipwrights had passed on their skills to their sons and the village industry had continued to produce seaworthy diesel-powered work boats, up to ten-metres long. Arthur also knew the industry would die without some incentive and encouragement.

Dinah and I had been dreaming for years of a boat large enough to live aboard and take small groups of adventurous travellers in comfort to discover PNG's remarkable islands, villages and reefs.

Our small ship had to be large enough for our ten guests, ourselves and two or three crew yet small enough to manoeuvre through shallow reefs and lagoons and allow reef exploration and diving directly from the boat.

We enlisted the help of Dick Morgan, a diving friend, naval architect and former marine surveyor for the PNG Department of Transport.

Dick produced a general arrangement drawing which enabled us to estimate the cost of construction and operation. We discovered two frightening things. Firstly we could not afford it; we could not justify the expense for a bank loan considering the projected revenue. Secondly, the cheapest construction material for a boat built overseas was steel; if we wanted a timber boat, it would cost us even more!

We were particularly depressed by the proposition of a steel boat. We definitely wanted a timber ship as we had been able to see for ourselves the most suitable material and methods for PNG conditions. We had seen ferro-cement yachts lost because of the barest scrape with a reef; we had seen a fleet of steel work boats with their decks

rusted after less than ten years' service. We had seen frantic owners of "no maintenance" fibreglass yachts, peeling away the layers of their osmosis-plagued hulls. And we had seen dozens of timber ships built 40-50 years ago as good now as they were then.

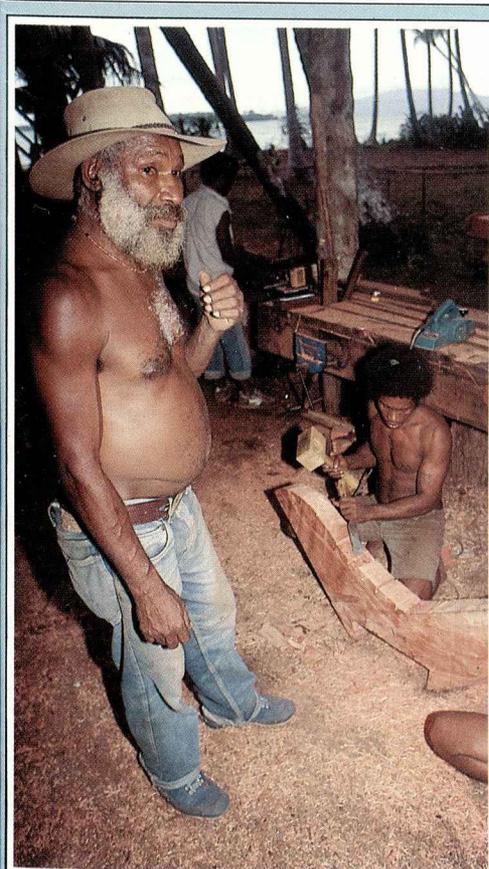
We soon discovered PNG has the finest boat-building timbers in the world and the local men are trained as shipwrights, capable of working these timbers.

Our good friend, Rob Vanderloos of Alotau in Milne Bay had decided to commission a village boat builder to construct a ten-metre dive/fish charter boat for his company. Rob was providing materials and the village boat builders were providing the skilled manpower. He suggested that we do the same; he also suggested we call Arthur Swinfield. Arthur turned out to be the most dynamic, enthusiastic and positive-thinking gentleman I have ever met. One phone call made me realise my dream could become reality. "Can they really build an 18-metre boat in the village?" I asked. "Of course they can; we did it in the 1930s!" he replied.

So we started: Arthur Swinfield in Sydney, Dinah and myself in Port Moresby, modifying our general arrangement to suit timber ships' lines and incorporating new ideas. Costings were made on the assumption that we would buy materials and employ village shipwrights and laborers to build the boat. Engineers and electricians would be subcontracted to finish construction.

We went to the PNG Development Bank (now the Agriculture Bank of PNG) with the project which was received warmly. Here was a project that would employ national labor and materials and possibly revive an industry. This revival could reduce the millions of kina lost overseas in purchasing vessels that could be built locally and employ our young people.

But no-one had built a boat of this size in the country for 25 years and the bank had to be convinced it could be done. After consulting



both Arthur and an independent Sydney authority, they revised our estimates upwards! The finalisation of the loan took 18 months — but the scheme was approved and funds made available from the Development Bank and the National Investors Scheme.

Meanwhile, we had started work. Dinah enlisted the help of a brother and land was cleared on the beach at the family home near Divinai village in Milne Bay. Another of Dinah's brothers found the tree to cut for our keel. After four attempts, a straight 21-metre log was cut and towed by boat to the site. Virtually all the timber for construction was delivered by sea. The 20-kilometre road from Alotau to Divinai was often flooded and much of the timber was too big and heavy for the trucks. So we brought the boats close to shore, off-loaded the timber into the water and the builders dragged them ashore. Since many of the PNG hardwoods sank because of their heavy weight, this meant a lot of hard work. Fortunately the water was shallow.

Our first boat builder in charge was Holika, who had built Rob Vanderloos' charter boat Cherie. He supervised the laying of the keel, the lofting and the setting up of the moulds to give the shape of the hull. Arthur came up from Sydney to check this stage and was very pleased with the accuracy achieved from his drawing. Unfortunately, Holika then started to have trouble interpreting the plans and we looked for help elsewhere. An expatriate shipwright only lasted a week, and eventually we were directed to find Douglas Lebasi.

Dinah and I took an immediate liking to this apparent vagabond whose bright eyes gleamed from a head that consisted mainly of a mass of bushy silver hair. We looked at the plans together and after a few questions I soon realised that he could read them better than I. "Can you build this boat?" I finally asked. "Yes, and I will," he replied. Well, he almost did. He built the hull in the village at Divinai, saw Telita launched and towed to Madang and started work on the fit out. Then

one day he announced he was "empty" and walked off the job. We are still good friends.

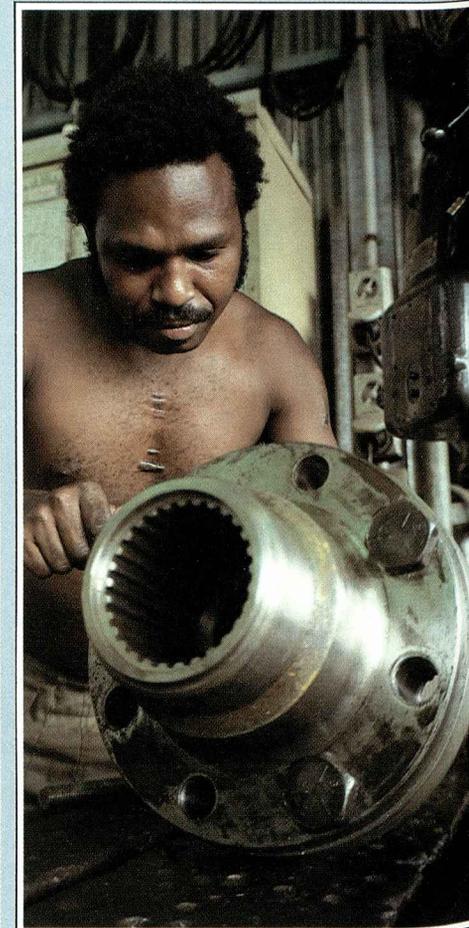
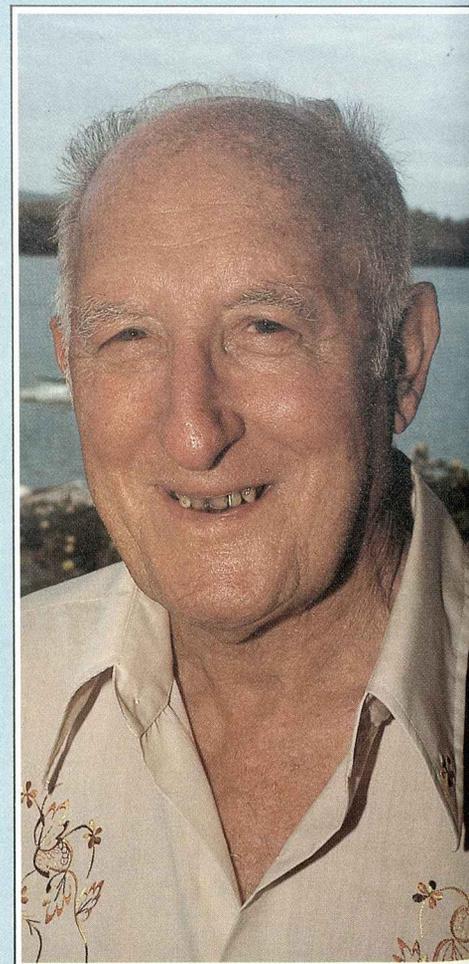
A great improviser, he built Telita's hull without the benefit of professional machine tools. The most sophisticated tool was a chainsaw and the only power came from 3 KVA generator, usually used for handyman's power drills and sanders.

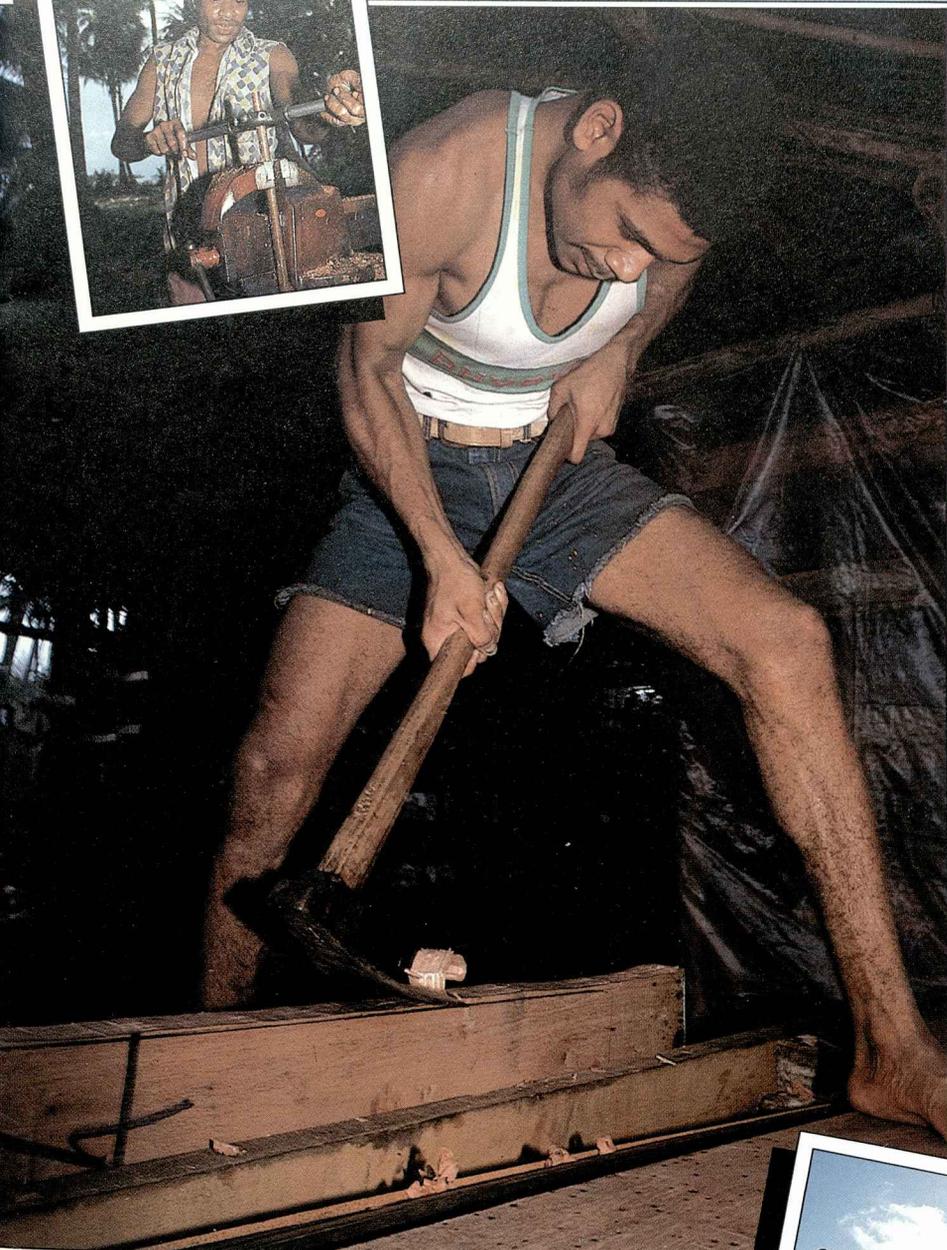
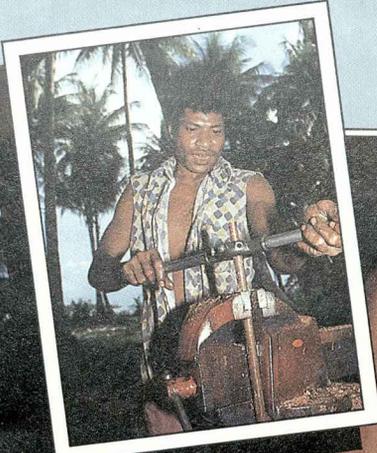
By April 1986 Telita was ready for launching. A slipway cradle was built from coconut trees and the hull was painted. Former Prime Minister Mr Michael Somare, MP made a special visit from Port Moresby to name her. He praised the workmen for their fine efforts.

Putting Telita into the water proved to be more difficult than planned and the unpredictable tides of Milne Bay were reluctant to help. Under the direction of Kevin Baldwin, an electrical and marine engineer, the assistance of a bulldozer from Atlas Plant Hire and MV Melisa with skipper David Miller, Telita was transported into the water where she sat, propped up with poles. At 11.45pm on 10 April, after we had given up for the night thinking the tide had peaked insufficiently, the tide rose again; the poles fell off and Telita was afloat and quickly moved to deeper water.

After loading tools and timber the Melisa towed Telita to Madang for fit out. We obtained a berth at Lutheran Shipping's workshop at Binnen Point and some local shipwrights were added to the team from Milne Bay. We were fortunate to be able to employ David Lawrence who was on long service leave from Steamship's Slipway and was the grandson of Arthur Swinfield's head shipwright at Kwato. David became head shipwright after Douglas left and the fitout was organised by Kevin Baldwin who taught our shipwrights and trainee engineer the new skills needed. Kevin is also an experienced diver and diving instructor; he appreciated our aims for the boat and was able to suggest and implement many features that have made Telita the success that she is.

In August Dinah and I moved to

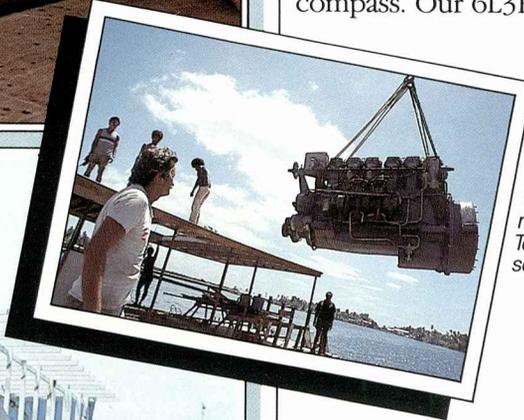




Madang to help in the final stages. Dinah also spent a few hours every day at the Madang Nautical College studying for her coxswain's ticket which she successfully obtained. Evidently it is unusual for a lady to obtain a skipper's qualification. When she eventually received her "book" we found the bureaucrats had solved the problem by listing her as "male"!

When finishing the ship, we wanted to show off some of PNG's fabulous timbers. We were lucky to find some beautiful sawn and air-dried timbers at Bramen Catholic Mission in the Ramu Valley and truck loads of rosewood, kwil and cedar were brought to our building site. Eric de Haan produced some beautifully crafted furniture from his workshop and Kevin taught our Milne Bay shipwrights how to put in linings and caps, shelves and trimming to the high standard required.

After seemingly unending delays but really only eight months we were ready for sea trials. Arthur arrived from Sydney to make the stability tests with surveyors from the Department of Transport. Final inspections were made and we steamed away from the wharf for speed trials and to swing the compass. Our 6L3B Gardner main



Top left Naval architect Arthur Swinfield who trained PNG's first shipwrights. **other photos** Old and new methods readied MV Telita for its launching, seen at bottom right.



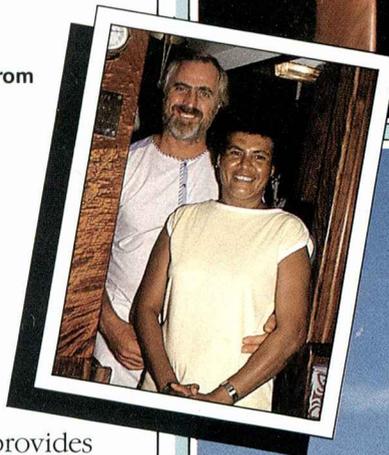
engine gave us 9.26 knots at only 1000 rpm, fully loaded. That completed Telita passed her survey inspection and we set to sea for her maiden voyage to Alotau. We will always remember arriving at East Cape, Milne Bay at dawn with villagers waving greetings on the beach and us answering with long blasts on the horn. Our Milne Bay shipwrights were so excited and

proud to return home aboard their own handiwork.

MV Telita is 20 metres long with 5.5 metre beam and 1.8 metre draft. She has five large air-conditioned cabins, each featuring a different type of PNG hardwood. Each cabin is fitted with hand basin, fan, hanging locker and two bunks to accommodate a total of ten guests. Two cabins have oversized bottom bunks — our honeymoon suites! Our cabin and crew quarters are forward, but the guest accommodation is midships to give the most comfortable ride. She is fitted with large saloon and galley completed with bar, video, hi-fi and a unique charging console for our underwater photographers, with 24-hour 110 and 240 volt, 50 Hz electrical power. A Gardner 2LW auxiliary engine drives a pair of Bristol H.P. air compressors providing for diving and a super



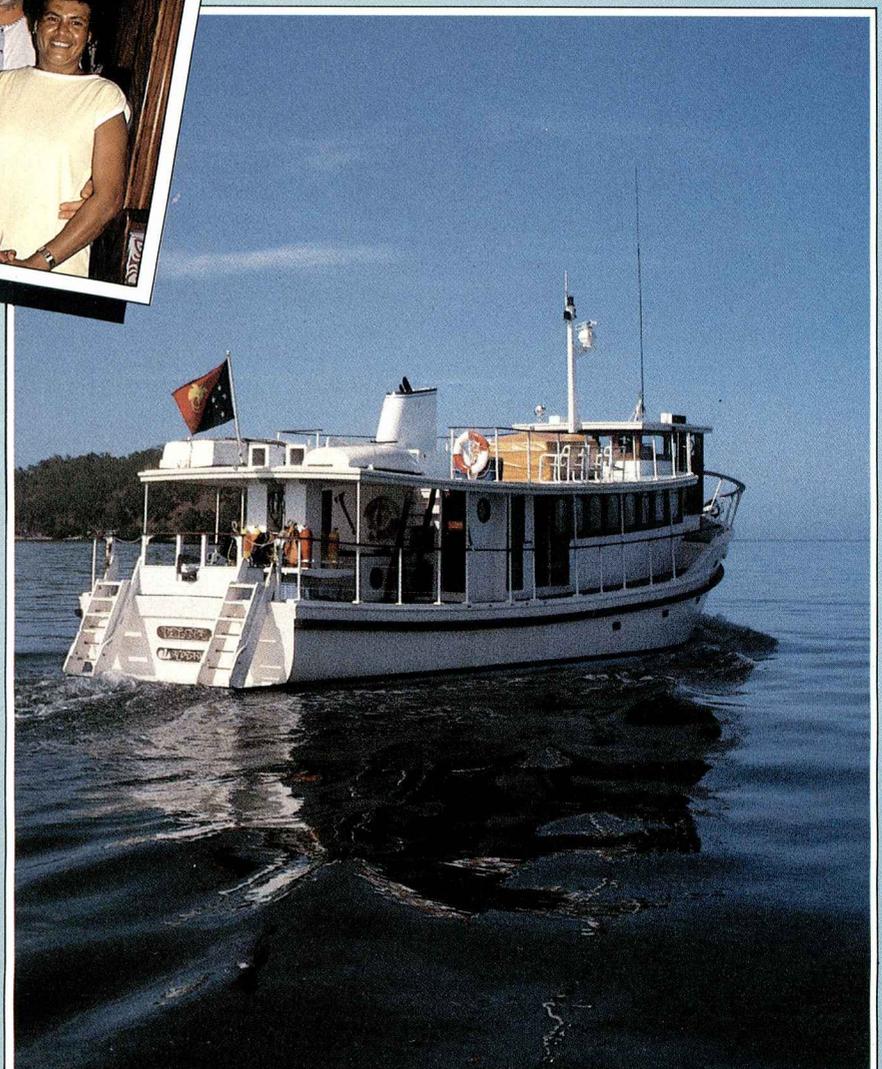
Inset Bob and Dinah Halstead. from top The dive deck; MV Telita at anchor; meal time in the saloon; under way on a calm sea.



quiet Lincoln generator provides power at anchor.

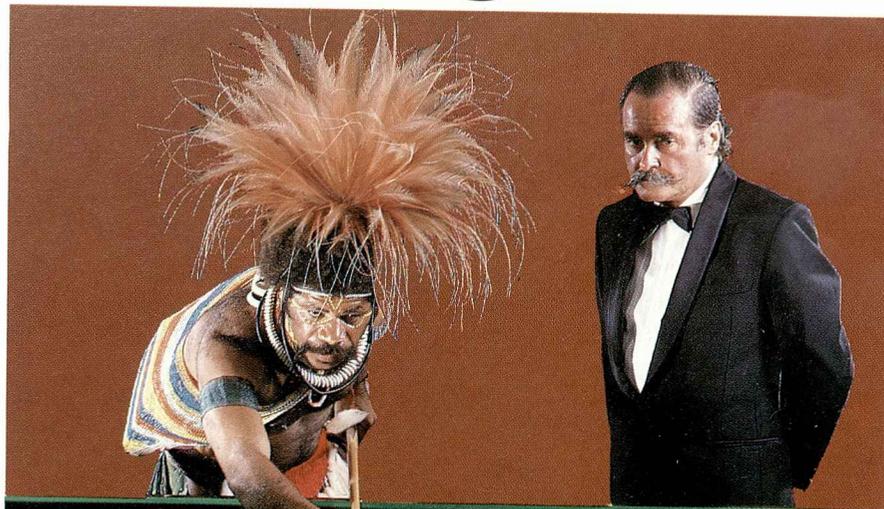
Telita has a large sundeck which is ideal for sunbathing, enjoying evening cocktails, star gazing or even a disco! Her sophisticated electronics allows her safe day and night navigation throughout PNG. With Telita's completion a new era of discoveries has started — the systematic exploration of PNG's underwater paradise.

Bob Halstead describes some amazing underwater finds on page 23.



Details on scheduled cruises and private charters are available from: Tropical Diving Adventures, PO Box 1644, Boroko, Papua New Guinea. La Mer Diving Seafari Inc., 823 United Nations Plaza, Suite 810, New York NY10017, USA. Aquarius Dive Travel Service, 40-42 Taylor Street, Ashburton, Victoria 3147, Australia.

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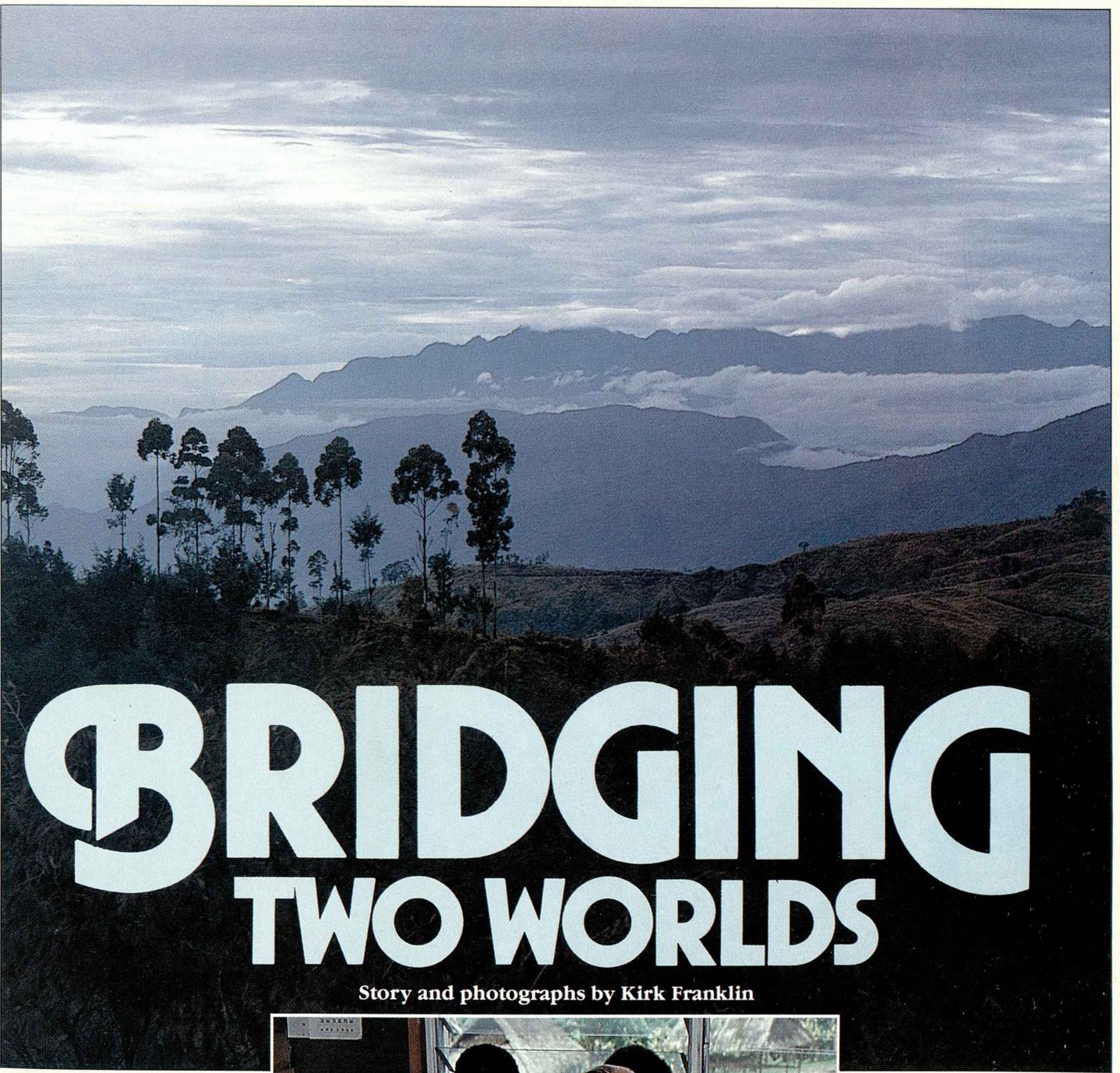
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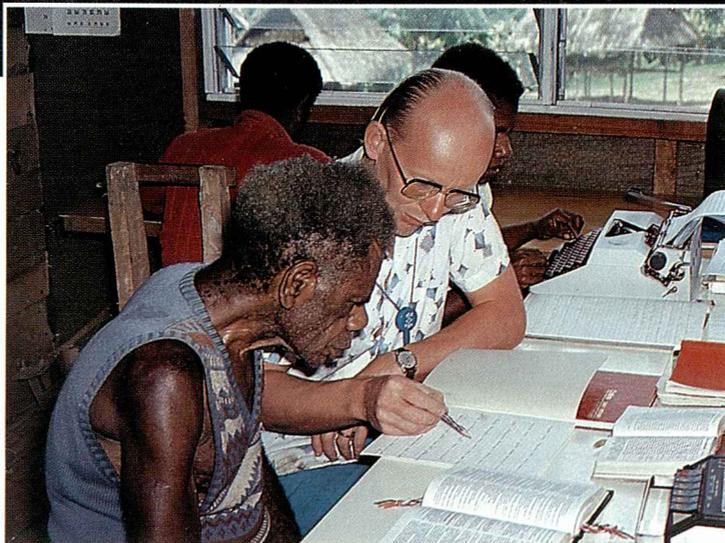


BRIDGING TWO WORLDS

Story and photographs by Kirk Franklin

Flying high over the often rugged terrain of Papua New Guinea reveals its breathtaking beauty. The contrasts are startling: the blue hues of the Finistere ranges, the jagged limestone cliffs of the Gulf Province, the mammoth Sepik River and serene sun-kissed beaches. This is PNG, a country with splendors that touch all the human senses.

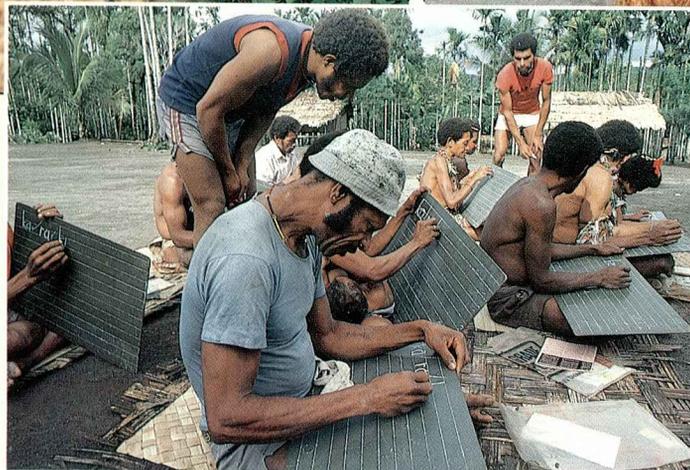
The people of this magnificent country are colorful, friendly, hospitable and diverse. Every Papua New Guinean has a special cultural inheritance



Top Mount Wilhelm, a Summer Institute work site. **bottom** Burum villager helps Finn Soini Olkkonen compile a dictionary.

which differs from area to area. A symbol of wealth among the Kaulong of West New Britain is a special disc-shaped *mokmok* stone with a hole in the centre. The same status symbol for the Burum of Morobe Province is a mat made of shells neatly woven together in distinctive patterns. Contrasts like this occur in every corner of the nation.

Staple foods vary too. Sweet potatoes are abundant in the Highlands, and yam and taro grow well in the coastal regions. Sago is important in most of the



lowlands and islands.

Languages, however, present the greatest diversity. Many are complex with polysyllabic words. Others have alphabets containing as few as seven consonants. A language spoken by villagers on an isolated mountain ridge can be completely different from that of people living in a valley only a few kilometres away. More than 700 languages are spoken and each language group is unique.

As PNG courts westernisa-

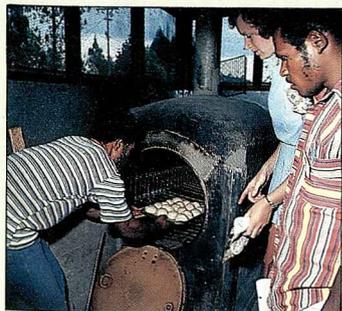
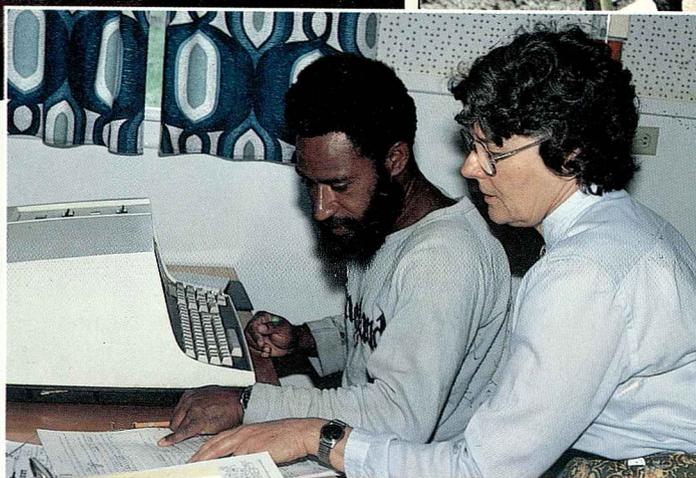
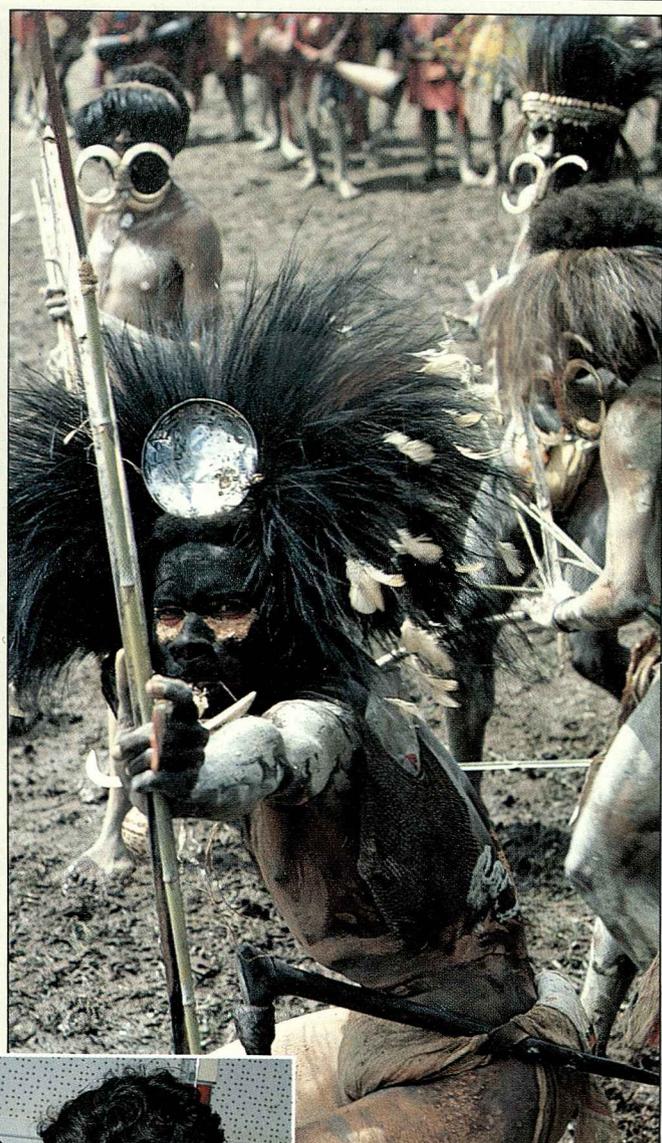
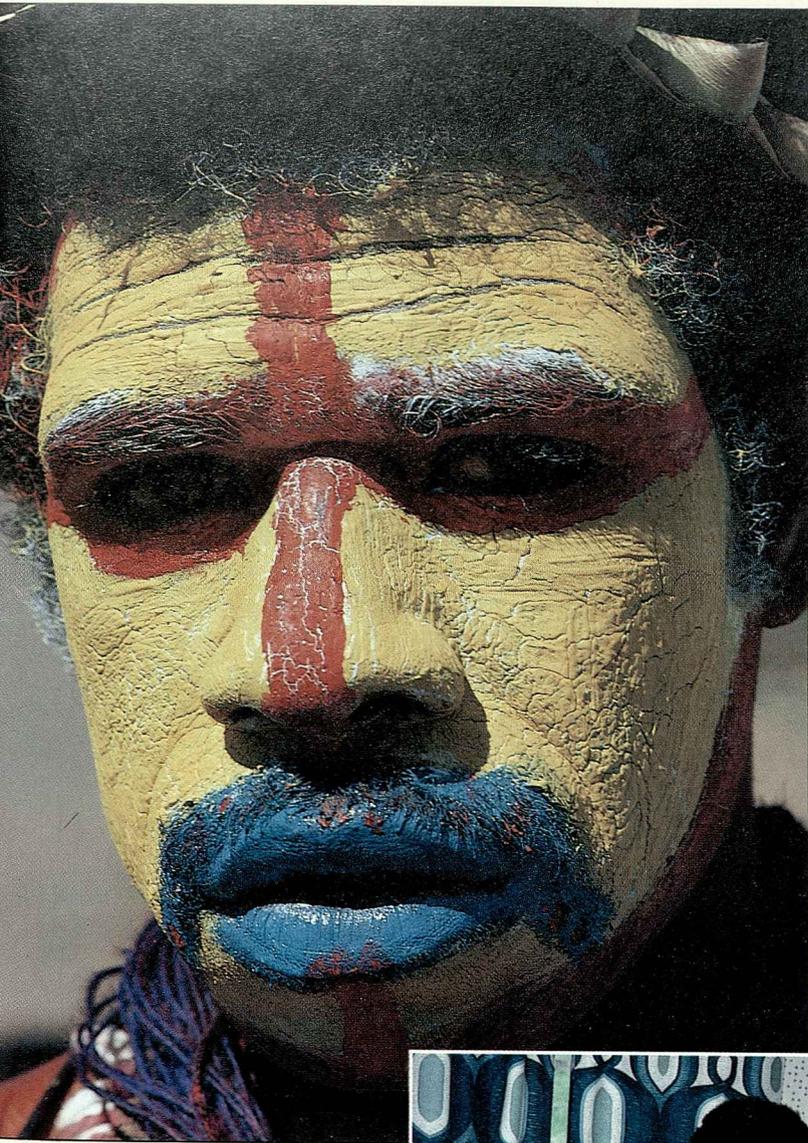
tion and ideals, many cultural values change very little while others are replaced. Whatever changes face the country, Papua New Guineans are being encouraged not to forsake their cultural identities but to bridge the two worlds.

People can preserve self respect through using the language with which they grew up. The mother tongue is often the only cultural value that

makes one group different from another. Yet for the sake of development in this nation, the education system is faced with the challenge of crossing the language barriers of more than 700 languages. This is being done through schooling in the three major languages: English, Melanesian Pidgin and Hiri Motu.

The massive jungle of PNG's languages has attracted many

linguists, anthropologists and translation organisations. The Summer Institute of Linguistics (known as SIL) is one of many that have come to PNG for this reason. It is an international group of Christian specialists devoted to assisting those who have no previously written language. The Institute started work in PNG in 1956 and Ukarumpa, in the Eastern Highlands Province, is the main centre of its operations. Linguist/translators working



Top row Villagers helping the linguists include, **from left**, East Sepik and Morobe women, Highlands men from Tari and Wevi. **Bottom row** SIL members advise on, **from left**, Medical treatment; adult literacy; air transport; bakery technology; computer data processing.

with SIL are helping more than 165 language groups in this country. Work with an additional 55 language programs has been completed during the past ten years.

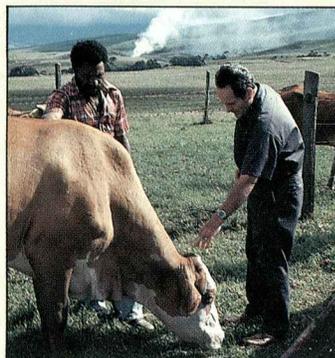
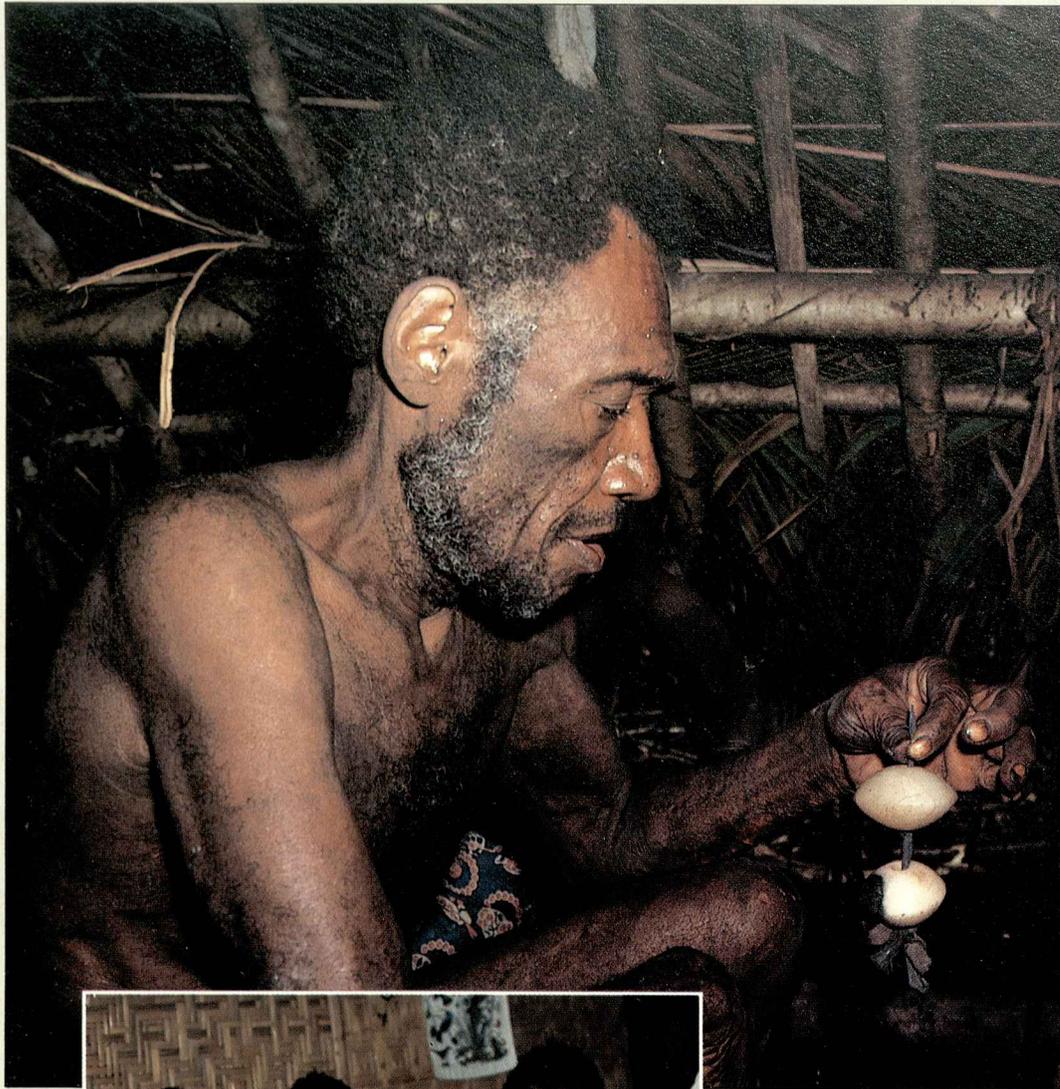
SIL, as a scientific and educational organisation, varies its work through translation, linguistics (the study of languages), literacy and community development — all in the local languages. Learning a language is the first step a linguist/translator embarks

upon. Analysing the pronunciation results in an alphabet and analysing the language structure results in a written grammar. The linguist/translator uses continuous input from the village people.

Co-operating with the churches of PNG as a service organisation, SIL is participating in the translation of the New Testament and other Bible portions into all the languages in

which the Institute is working. Other quality literature also is translated, including booklets on geography, nature, health and hygiene. In addition national translators' courses are held each year at Ukarumpa.

SIL encouraged the formation, and is in partnership with, a wholly national-operated organisation called the PNG Bible Translation Association. This association recruits and



Top West New Britain man with mokmok stones, symbol of wealth. **below** Symbols of technology in the form of skills in sewing; aircraft maintenance; and animal husbandry.

nected with the translation and literacy work. The Institute employs more than 200 nationals in various fields including accounting, bookkeeping, mechanics, secretarial skills, computers, carpentry and printing.

Government-approved apprenticeships are offered in many of these areas. Local people at the village level are trained in writers' workshops. These courses result in many local authors producing books or village newspapers. Literacy instructors are taught to teach their people to read and write their own languages. The bridge then becomes easier to cross to any of the country's three major languages.

Coupled with literacy, the Institute regularly conducts and participates in specialised courses in appropriate technology. Skills are taught in agriculture, sewing, carpentry, health and mechanics. The aim of such courses is always to help rural people to improve their traditional way of life.

SIL personnel for many years have assisted the North Solomons Province in vernacular preschool programs. These programs and many others in provinces around the country have had an impact on teaching children to read and write their language before they proceed to community schools. Children coming out of such programs are better able to relate to both worlds.

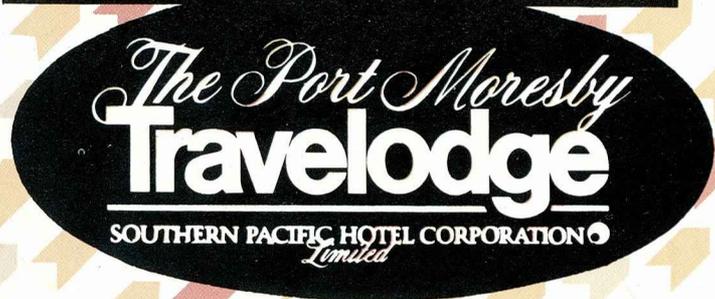
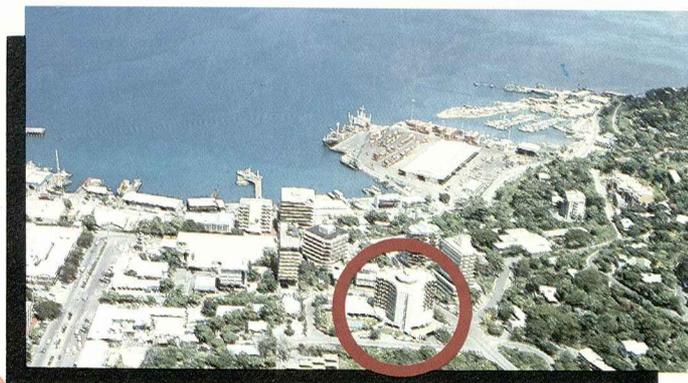
SIL is assisting with meeting the needs of the rural people who face the constant struggle of living between two worlds. Those who want to, can be helped to face the new world of development without losing their traditional world of language, culture and rural way of life.

trains nationals wanting to become Bible translators and literacy teachers.

The work of linguistics, translation and literacy teaching could not be carried out without a strong backbone of technical services. SIL maintains a fleet of five light aircraft and two small helicopters to provide vital air links to teams working all across the country, often in remote areas. A printshop is printing books in local languages. High technology in the form of modern computers is having a significant impact on linguistic analysis, data and word processing — all con-

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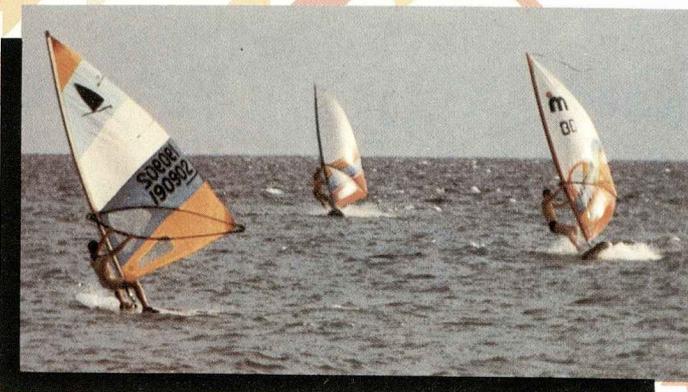
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Our aim for the first year of operation of our new 20-metre charter motor yacht, the MV Telita, is to visit as many areas in Papua New Guinea as possible, taking advantage of the changing weather patterns, and assessing and comparing different dive sites. Since we will be diving areas new to us — in many cases, new to any diver — we

expect to make some startling underwater discoveries.

One of our most exciting finds has been that of a Japanese mini submarine, in near-perfect and undamaged condition. Finding a shipwreck is always exciting, but the excitement can often lead to

disappointment when you realise others have taken or damaged the most interesting artifacts. This wreck was previously undiscovered.

The waters around New Hanover to the north west of Kavieng were reported to have wrecks of aircraft and ships. This is a very beautiful part of PNG with superb reefs, idyllic anchorages and friendly colorful villagers, who are experts at catching the prolific mud crab. We dived and ate like royalty! Being as far away from

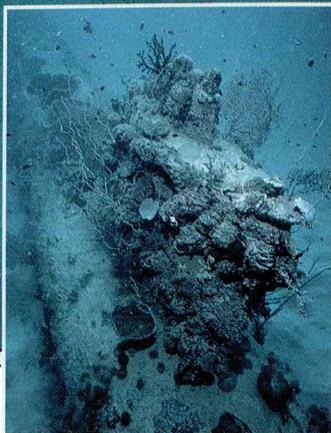
Port Moresby as it is possible to be in PNG, few visitors and even fewer divers have had a chance to look at these wonders. We managed to get some information locally and soon had discovered two aircraft wrecks and three shipwrecks, including a large armed Japanese freighter in Three Islands Harbor. The wreck is a most lovely sight, covered with



*Wreck of a Japanese midget submarine found after lying undisturbed for more than 40 years. **insets** from left Stern; conning tower; bow; hull.*

MINISUB

Story and photographs by Bob Halstead



sea fans and tropical fish, and shallow enough at six to 25 metres to allow many hours of diving daily.

We decided to continue exploring the area as it seemed likely there would be other wrecks. Kevin Baldwin, a National Accredited Underwater Instructor (NAUI) and former professional salvage diver, surfaced from a dive with even more exuberance than normal. Kevin is well known and loved for his imaginative descriptions of his underwater adventures — and we knew another story was coming up. “What did you find this time? A walrus and a carpenter?” we kidded. “No,” said Kevin. “But how would you handle a submarine?” Since we know that Kevin’s stories are usually based on the truth, it took only a few minutes to get us back in the water to see for ourselves.

And there it was. A Japanese mini submarine, completely in-

tact and untouched, sitting upright on the sandy bottom in about 20 metres of water. Unbelievable!

The bow consisted of twin torpedo tubes, one on top of the other, and further aft the conning tower rose from the hull complete with an entry hatch, periscope and strobe light. The twin counter-rotating propellers and tail fins at the stern were in excellent order.

Measurement showed the sub to be about 25 metres long, apparently of a similar type to the submarines that raided Sydney Harbor in World War II.

The hatch was not locked and was easily opened after clearing some coral growth. A penetration was possible but not easy, since the hatchway was very narrow and a diver would have to descend through a pipe about two metres long and only 45 centimetres wide. The smallest member of our expedition, Ruth Goiny, volunteered. We made a special regulator with a long hose to allow her to get into the wreck. Carrying a tank in was not possible, nor could

she wear any sort of buoyancy vest. Lines and lights were organised and safety divers were appointed. We had seven NAUI instructors aboard: my wife Dinah, myself, Kevin, Ruth and Mike Goiny, Peter Miller and Jan Chapman. Ruth was confident we could look after her.

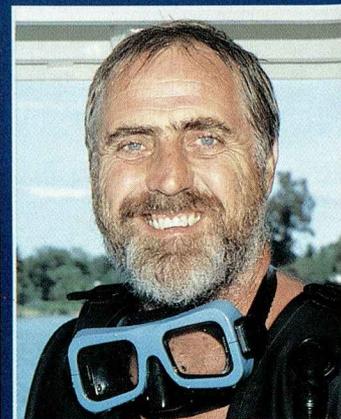
She reached the open hatch of the conning tower, removed her fins and descended into the tube with air-safety lines tended from above. We tried to pass a camera down but, before any photos could be taken, Ruth signalled to come out. A ladder at the bottom blocked off access and made manoeuvring very difficult. The sub-

marine was designed for very small crew.

A second team of divers, with Peter Miller, owner of Rabaul Dive & Tour Company, made the penetration and figured out how to gain access. The next morning Peter, who is enviably slim (for the first time, I cursed my 190 centimetres and 100 kilograms), cleared the ladder and then he and Ruth took photographs inside the submarine.

The Premier of New Ireland Province and Bruce Hoy, Curator of Modern History at the PNG museum, were in-

Right Eagle ray, bottom, from left
Diver entering sub; Bob Halstead;
Dinah Halstead checks propellor;
diver at the conning tower;
encrusted periscope.



formed of the discovery.

Fortunately legislation exists to protect all war relics in PNG so future visitors to this wreck will be able to see it in its original condition, enhanced by the rich marine growth that has enveloped it. The submarine will now become a regular part of Telita's itinerary when operating out of Kavieng.

For many years we have had a fascination with the Cape St George area at the southeast extremity of New Ireland. The ill-fated colonisation attempt at Gower Harbor in English and

Irish Coves by the scoundrel the Marquis de Rays was a tragic misadventure, leading to death and ruin for many of those involved. Reports from cruising yachtmen described the area as breathtakingly beautiful with ideal anchorages. This we had to see, and to discover what glories awaited us underwater.

At one site around an offshore rock, our divers returned to the boat, two by two, reporting lobster sightings, giant sea fans, inquisitive sharks and some unusual shells. Dinah and Kevin Baldwin were diving together when they decided on a lengthy swim to cover as much of the reef as possible. They were the last to return to Telita and all we could get from

them was "absolutely incredible!" until the euphoria and adrenalin had subsided.

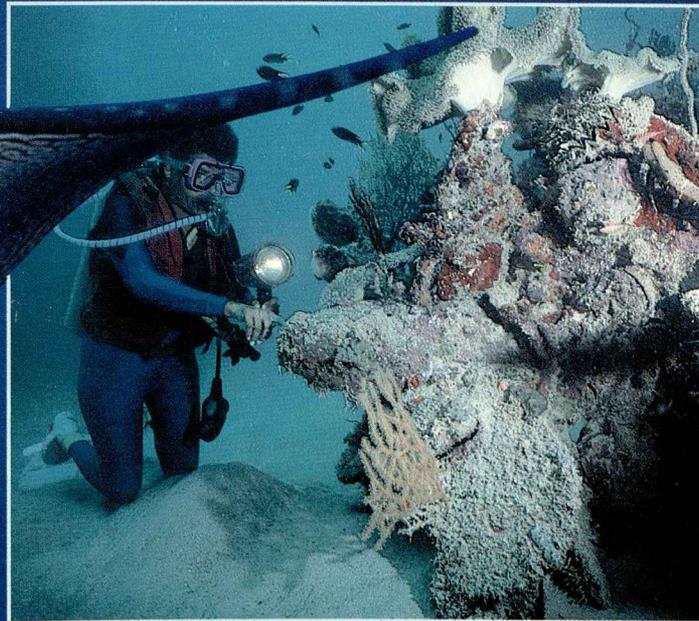
They had swum to the edge of the reef which dropped off into very deep water and they swam along at depths between 25 and 30 metres. As they moved along the reef, they noticed a gradual increase in the numbers of fish, sea whips and fans. They were swimming around a corner of the reef towards a feeding area, where they could expect to find a concentration of marine life, when they found a huge underwater coral arch stretching more than 30 metres to another reef. The bridge curved up and overhead, with fish swimming through and around, its surface

and the cliffs of the coral bases covered with pink flower-like soft corals, above the deeper, huge sea fans.

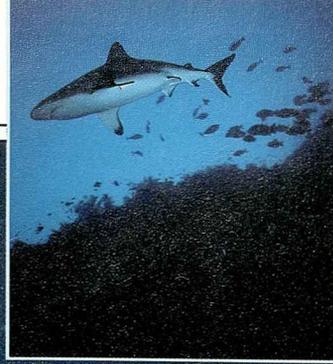
After Dinah's and Kevin's briefing and a suitable surface rest, all of us were back in the water to explore this unique formation; one we shall revisit on every possible occasion.

Only a couple of hours cruising from Kavieng, the New Ireland provincial capital and an Air Niugini F28 Jet port of call, is an area of islands, channels and reefs close to deep ocean water. We had exceptional diving in this habitat and delighted in finding many exciting dive sites, all worth recording and revisiting.

After anchoring Telita on an



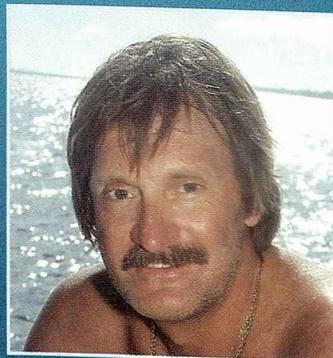
Right The inspiring coral arch off New Ireland now called "Baldwin's Bridge". **Insets** Wildlife at the arch; Kevin Baldwin.



interesting ridge of coral, with barely two fathoms of water under our keel and a strong current coming from the ocean, we rigged a line to get us over the front face of the reef and out of the current's grip. Our group split up to explore

the reef. Dinah and I swam to the right, taking photos and working towards the direction most of the fish were heading. This brought us round harder into the current and progress became more difficult but more rewarding when we realised the fish had the same idea. They were heading to the part of the reef receiving the current as this was where the food was coming.

Eventually we reached the point of the reef. Sharks and fish were everywhere — a



beautiful psychedelic display of moving form and color. We decided to push round the point to let the current drift us back towards the boat on the other side of the ridge. As we came around we discovered a

narrow passage with a sandy bottom at about 30 metres and a squadron of eagle rays suspended, almost motionless, keeping their position where the current flow was greatest. Every minute or so, one would soar off, make a banked turn, then swoop back into formation. This became Eagle Ray Pass and subsequent dives led to sightings of up to 30 rays at one time — a rare and beautiful experience.

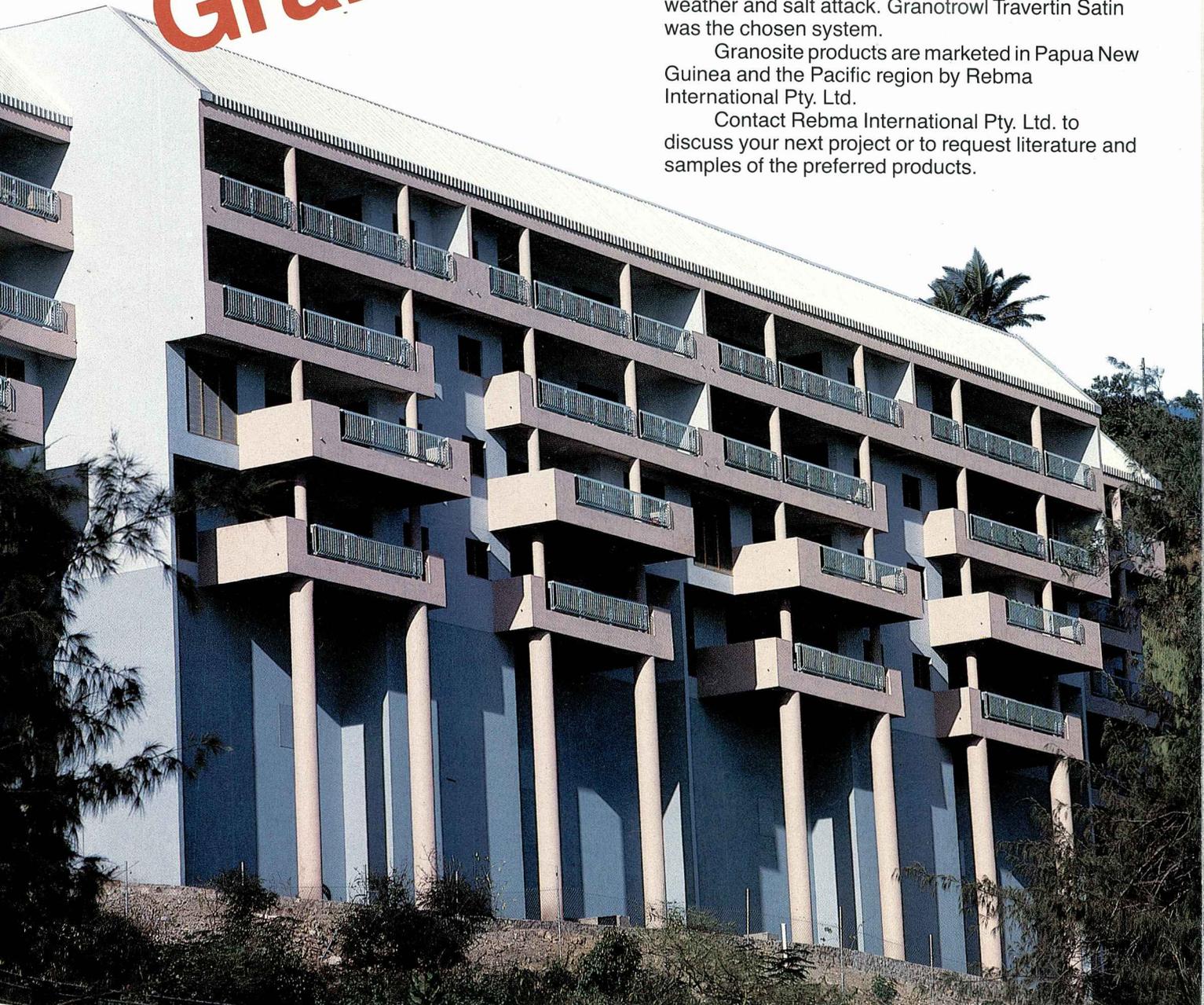
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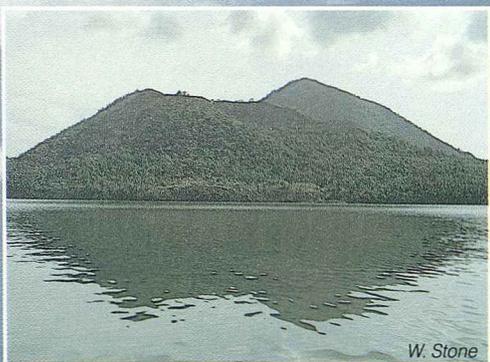
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Story by Lyn and Pat Manly

Crater of Matupit is seen directly above the end of the Rabaul Airport runway. insets The volcano from the bay; gases and steam pour from the mouth.

MATU



W. Stone



P. Manly

P I T

Each year Matupit Volcano is besieged by hundreds of tourists who climb to the summit for the experience and adventure of sitting on top of an active volcano. The views of Rabaul and Simpson Harbor from the Matupit ridge are superb. Steam and sulphur gas seep out of the vents in the crater; the landscape on the ridge resembles a rocky moonscape, a stark contrast to the lush jungles of Papua New Guinea.

Rabaul, East New Britain, is reputedly the only town in the world to have been built inside the rim of an ancient volcano. Around 1400 years ago the cones collapsed and formed an elliptical caldera. When part of the caldera's wall fell away, the sea flooded in to form what is now Simpson Harbor. Present day Rabaul is a large provincial town built at the northern end of this natural harbor. A chain of volcanoes tower over the town including three which puff and pant, and occasionally rumble.

Our first sighting of Matupit was from the air as we flew in to Rabaul. As the plane came into land at Rabaul Airport, Matupit appeared on the port side. From the opposite windows the single crater of the Rabalanakaia and the "Mother" could be seen.

Matupit looked so small compared with the other volcanoes encircling the ancient crater. We were expecting Matupit to be a massive cone with smoke billowing out of the top. The largest volcanoes in the arc are inactive and the absence of heat has allowed a thick, forest-green jungle to enshroud these looming mountains. Matupit which had its top blown off in an eruption, has jungle only at its base. From the plane, the gas vents and yellow sulphur deposits were clearly visible in Matupit's seven craters. Its distinctive sulphur gas greets you as you step from the plane at Rabaul Airport. Around Rabaul, the landscape is dominated by volcanoes rising

out of the jungle-clad mountains.

How do you get to Matupit? Just flag down a PMV (public motor vehicle) in the main street and ask the driver to drop you at the end of the road at Matupit village. The PMV follows the road around the airport, passes through coconut plantations built on the World War II Japanese airfield and arrives at the village after a ten-minute journey.

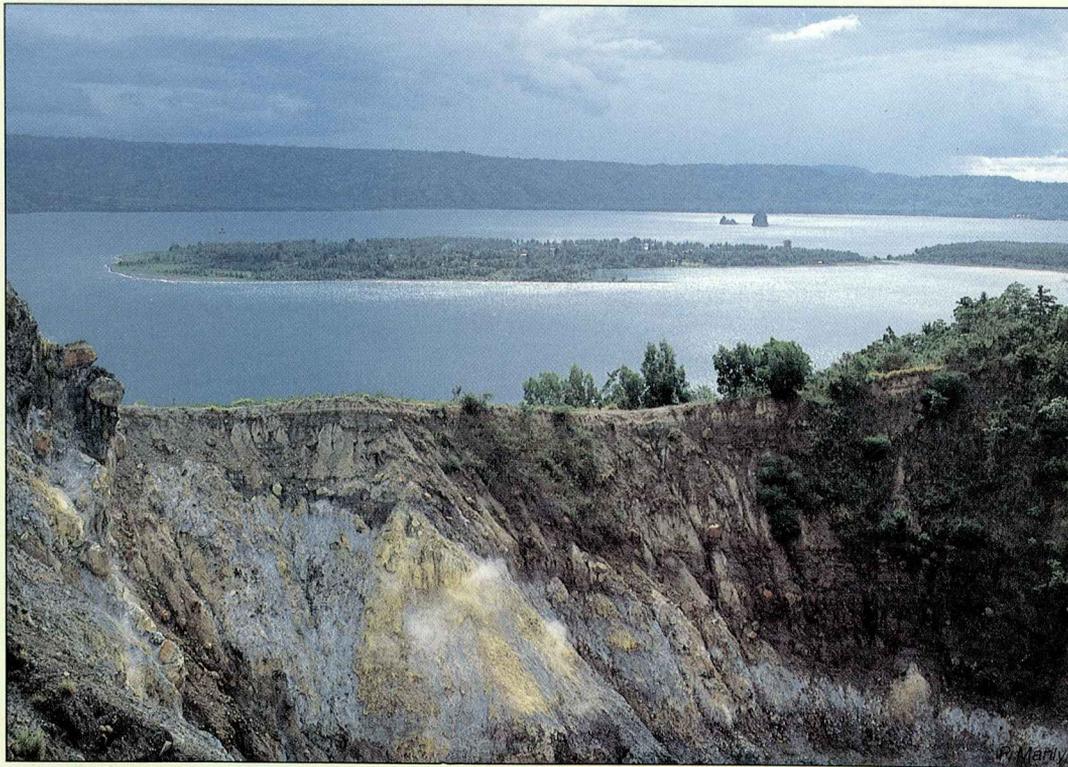
At the village walk down to the beach along a track about 100 metres past the right hand perimeter of the village. Do not walk uninvited through the village. At the beach turn left and walk along the pumice-covered shoreline leading to the shelter erected for visitors.

Several of the village men meet visitors to negotiate a fare for transportation across the bay. At first glance, the outriggers appear quite small and flimsy but this opinion alters as they glide across the calm waters towards the volcano. All passengers help paddle during the half-hour trip. Black volcanic sand and very warm water await you in the secluded inlet at the base of Matupit.

Our guide showed us the start of the track but declined to join us on the climb. He waited below with friends, under the cool of the trees. We noticed the temperature was much higher here and the sulphur smell much more pungent.

The track wound through bushes and long grass on a steady but not too steep, meandering trail. It was not the climb but the heat that was so tiring. After about 20 minutes of walking, the trail came to a clearing at the edge of a small crater. The smell of sulphur, was nauseating. Steam was escaping from small vents in the crater's side. We continued along the track to the main crater. Although we didn't really expect to see hot lava oozing from the crater, we were surprised at the sight before us.

The crater had a solid floor, about 50 metres down, where people had written their names with piles of loose pebbles.



They seemed so out of place. Sulphur stains on the inside walls ran down in yellow rivers to the crater floor. We climbed gingerly into the crater with the aid of a thick rope strung between steel posts. The air was thick and hot and seemed to burn our nostrils. After several minutes we craved the fresher air at the top of the ridge.

The climb to the highest ridge on Matupit is quite difficult. The steep incline is covered in fine pebbles and crumbling soil. We completed part of the way on hands and knees, with a great deal of care.

From the summit one can look in one direction to



Matupit village and beyond to The Beehives — two rocky islands thought to be the remainder of the core of the ancient volcano. In another direction lies Vulcan — a volcano which first appeared as a low-lying island in 1878, then peaked to its present height in 1937 when it rose from the sea in a

Top Matupit village from the crater. **centre** Inside the crater. **bottom** Villager canoes a visitor across the bay.

single upheaval, lasting for days and causing the death of more than 500 people. Vulcan is the first of the small cones to come into sight as an aircraft approaches Rabaul from Port Moresby. It is now completely covered with forest and food gardens.

To the right one can see Rabaul Airport and the sprawling township at sea level in the background.

Our eyes kept returning to the impressive volcanic mountains surrounding the whole scene. Sitting high up on this excellent vantage point, we could understand why it was so important for the Japanese during World War II to hold their base in Rabaul.

The harbor provided an excellent anchorage for their fleet and the high volcanic ridge meant gun placements could effectively guard the harbor from enemy aircraft. The soft volcanic rock in the hills are still riddled with tunnel systems in which the Japanese lived dur-

ing the continuous Allied bombing raids.

A gentle breeze swept up the face of Matupit as we sat resting, sipping a cool drink on the ridge, and reflecting on the colorful history of Matupit. In fact it is not officially called Matupit at all: its correct name is Tavurvur. The volcano became known as Matupit through its connection with the villagers from Matupit village across the bay. Tradition is that the Megapod bird lays its eggs in the hot ground around the volcano; unfortunately, we didn't see any.

Matupit last erupted in 1943 and further eruptions are probable. During the 1937 eruption volcanic ash and pumice showered Rabaul; trees were stripped and the town was almost destroyed. Matupit now rests quietly under the shadow of North and South Daughters, two very tall but extinct volcanoes.

Matupit is the smallest of the cones around Simpson Harbor but the most active. Volcanologists monitor volcanic activity (earth tremors, or *gurias* in the local language) on a daily basis and claim they can predict an eruption early enough for the town to be evacuated.

More serious adventurers can climb to the face of Rabalanakaia, not far from North Daughter. The climb takes three hours from Rapindik village and is recommended only for the fit. Matupit is a much easier walk and is much more accessible; what Matupit lacks in size, it makes up for in reputation.

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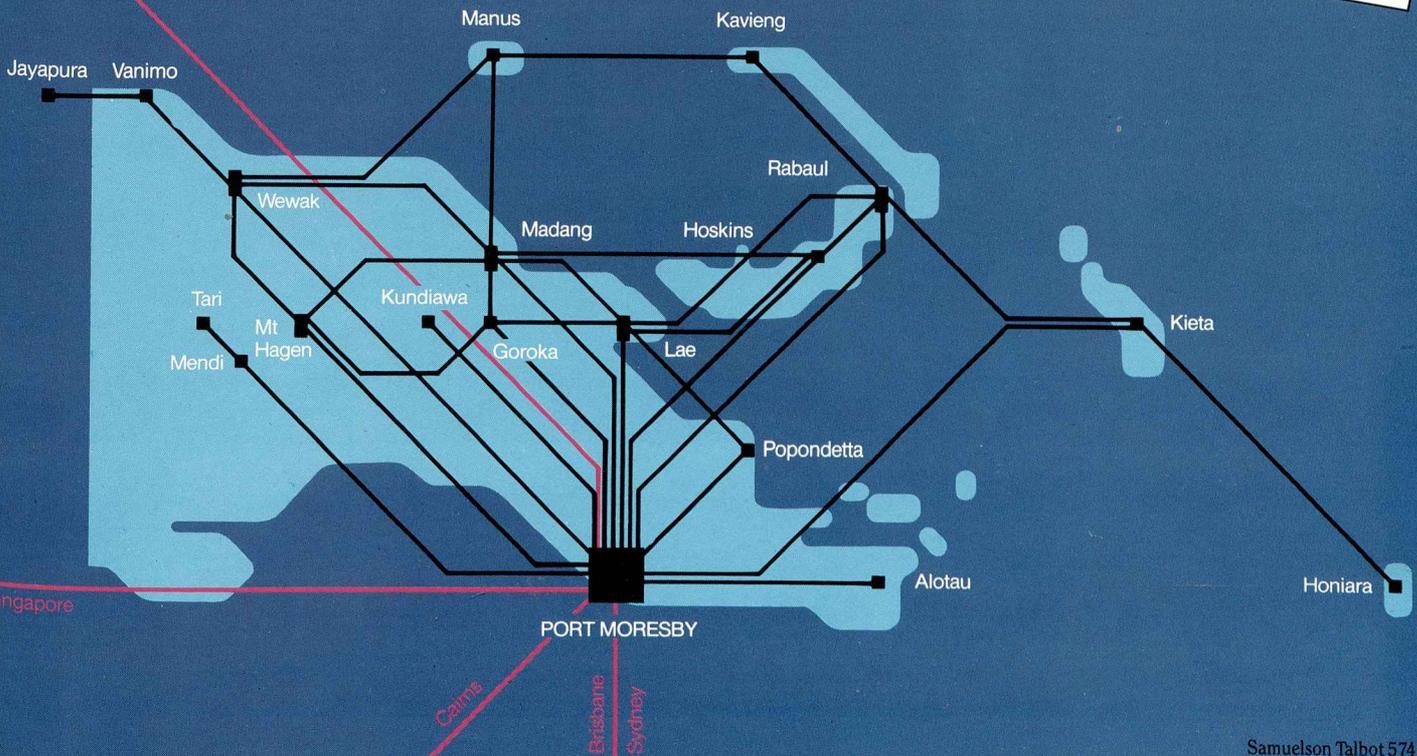
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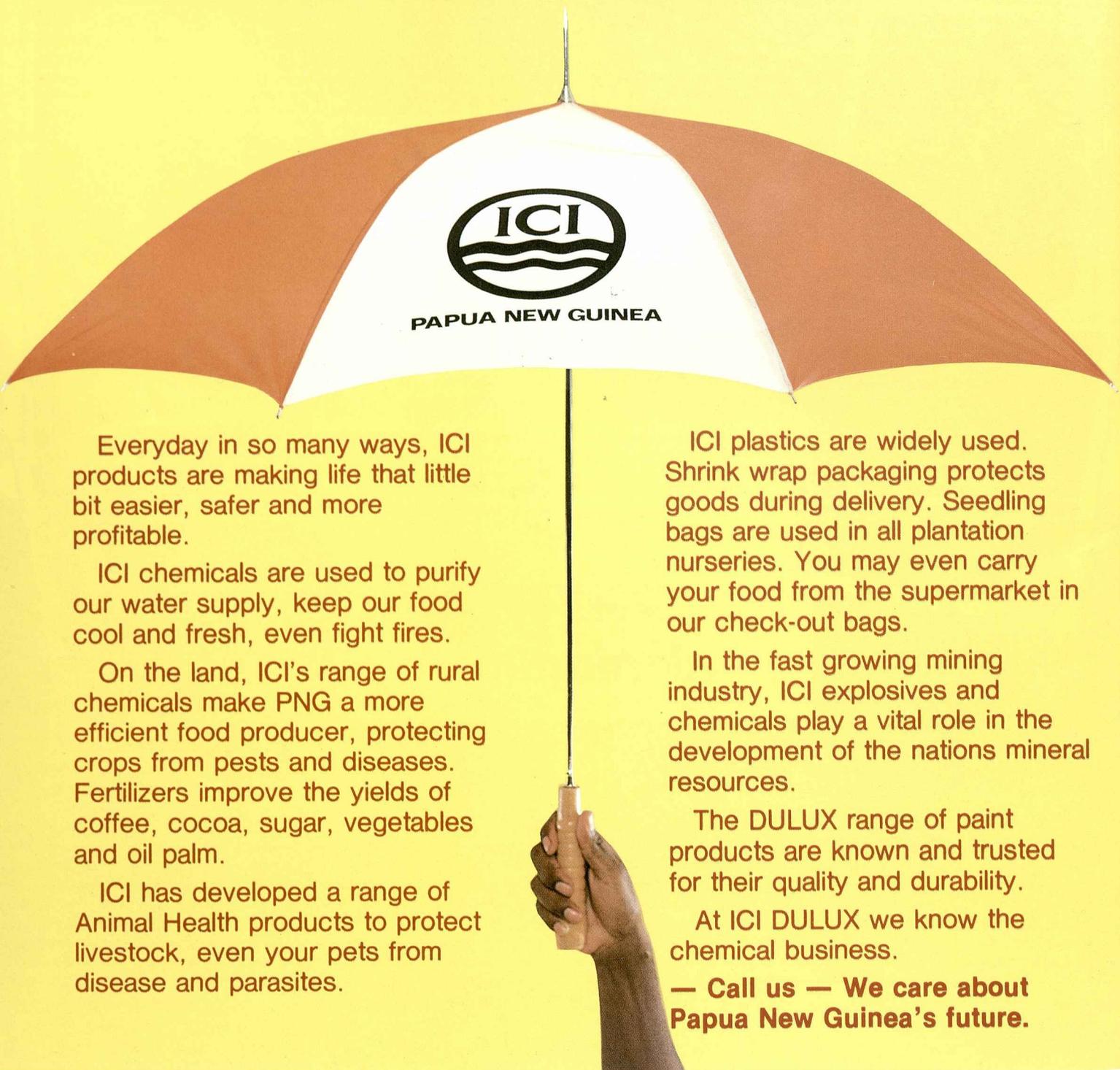
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In December and January each year, large numbers of breeding rock lobsters move on to the shallow reefs surrounding Yule Island in the Gulf of Papua. These rock lobsters have reached the end of an emigration that began up to six months before, on coral reefs in the Torres Strait. The appearance of the rock lobsters signals the start of a short fishing season in which villagers in canoes work the reefs day and night. The season lasts only a few months and by the end of April very few lobsters are to be found. Why the lobsters disappear and where they go remains a mystery.

The emigration involves only one species of rock lobster, the ornate rock lobster, *Panulirus ornatus*, which is the most abundant of several species of rock lobster found in tropical Australian-Papua New Guinea waters. It is particularly common on the vast reef systems that extend along the northeast coast of Australia, through the Torres Strait and up to the coast of PNG.

Although the ornate rock lobster has been a part of the diet of fishermen in the Torres Strait and Gulf of Papua for hundreds of years, only during

the past 20 years has it been commercially exploited. As the fishing pressure increases, marine biologists from Australia and PNG are working to further our understanding of the biology of the lobster. The story that is unfolding is remarkable.

It begins on the islands and coral reefs of the Torres Strait, lying about ten degrees south of the Equator and stretching from the tip of Cape York to Daru in PNG. They are all that remains of a land bridge that became submerged with rising sea levels about 15,000 years ago. These shallow warm waters are rich in marine life and are spanned by a spectacular network of reefs that create the ideal habitat for the ornate rock lobster.

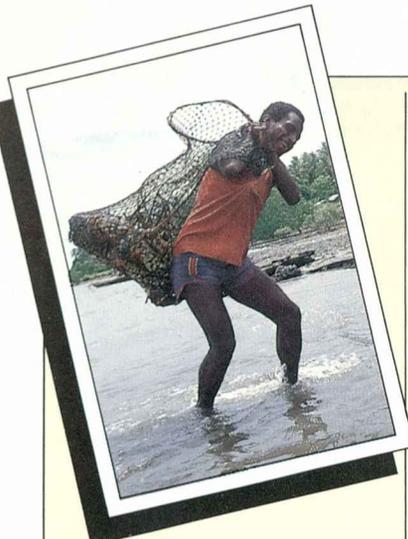
The rock lobsters live among these reefs for the first three years of their life. Hiding during the day in dens among the rocks and coral, then moving out at night to forage on shellfish and other small animals, the lobsters grow extremely rapidly. They reach a commercial size at about two years of age, almost two years earlier than rock lobsters in southern waters.

Since 1980, scientists from the Commonwealth Scientific

The Mysterious Ornate Rock Lobster

Story by Jasper Trendall

Photographs — courtesy of the CSIRO
Tropical Rock Lobster Project, Cairns



and Industrial Research Organisation (CSIRO) in Australia and the Department of Fisheries and Marine Resources in PNG have carried out an extensive program of tagging to follow their movements among the reefs. Biologists catch the lobsters in nets, number them with an inert plastic tag and then release the animals alive. When tagged lobsters are re-caught by fishermen, the identification number allows researchers to tell how far each lobster has moved. More than 7,000 rock lobsters have been tagged along the coasts of Australia and PNG. By working closely with the fishermen, researchers have been able to determine that the life cycle of the rock lobsters is dependent upon a mass emigration which takes them across the Torres Strait into the Gulf of Papua during spring each year.

Although there are many thousands of lobsters on the reefs of the Torres Strait, breeding lobsters are rarely found there. The two- and three-year-old animals on the reefs are immature and before they breed they undertake a journey covering the hundreds of kilometres to Yule Island.

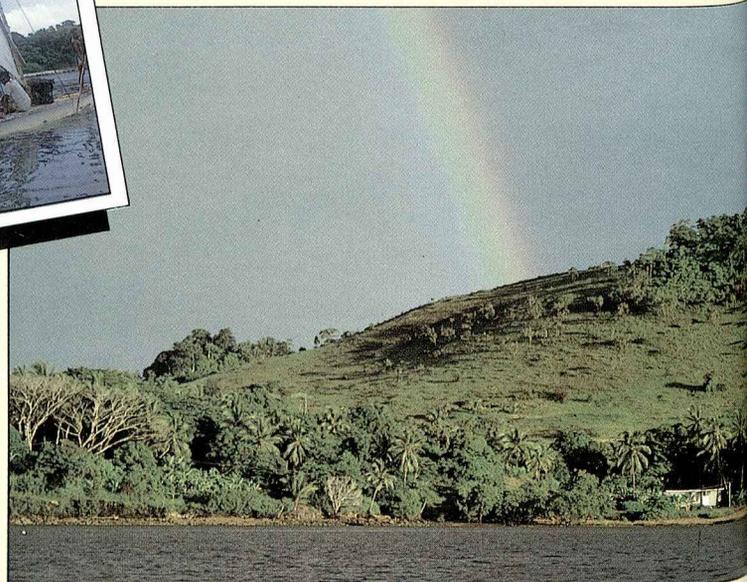
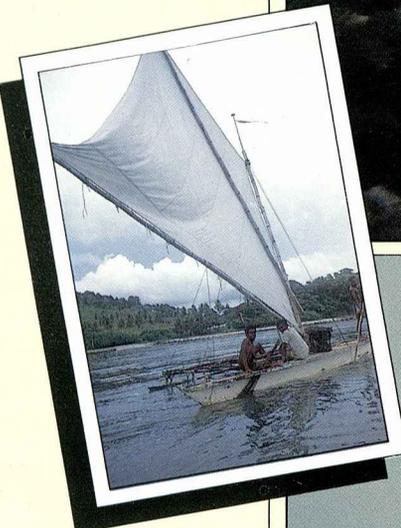
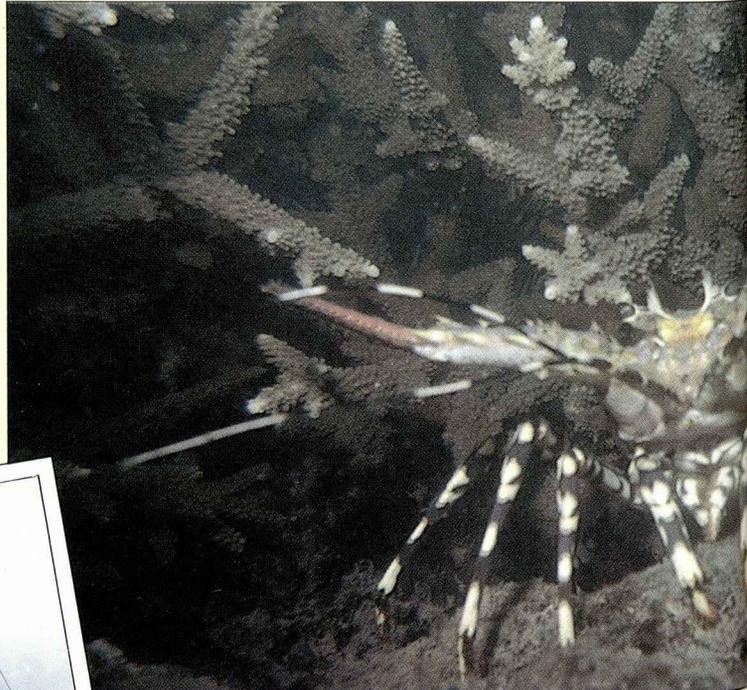
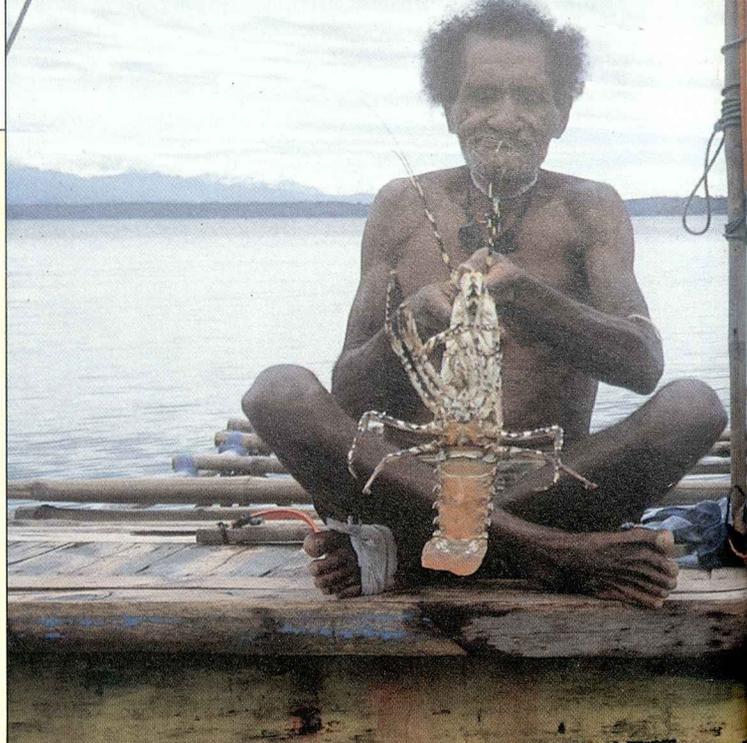
These mass movements take place around August and September each year. Rock lobsters leave the reefs and congregate in deeper water, progressively forming large groups as they move through the deep water of the Great Northeast Channel and into the Gulf of Papua.

In the six months it may take them to reach Yule Island, their

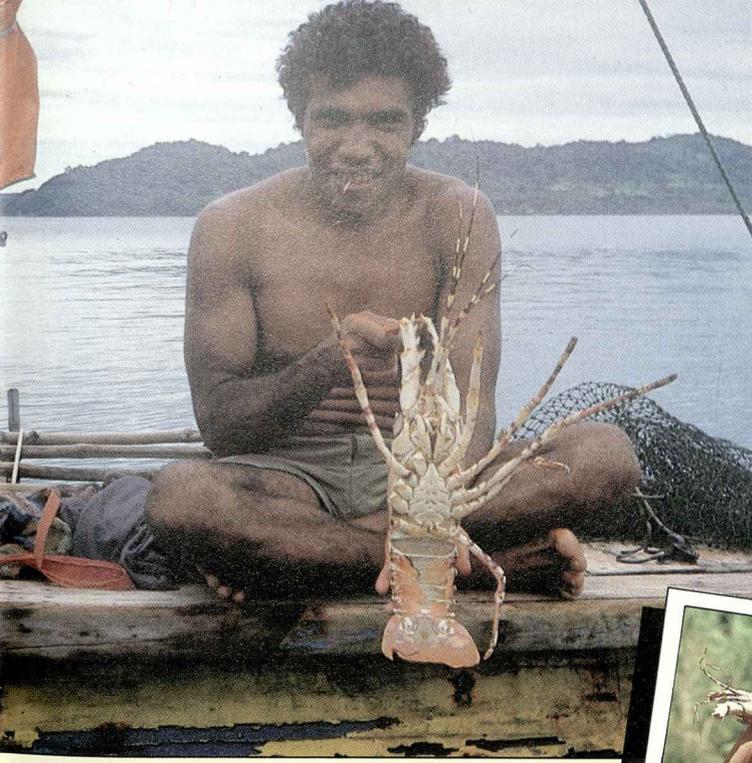
shells, which are normally kept scrupulously clean, become covered by dirt and barnacles.

By the time they reach Yule Island all have begun breeding. The females carry an egg mass under the tail which may contain a half-million eggs. When the rock lobsters mate, the male deposits a tar-spot or sticky sperm mass on the underside of the female's shell. As the eggs are laid, she fertilises them by scraping the tar-spot with a specialised claw on her fifth leg. Each brood is carried by the female for about four weeks until the eggs are ready to hatch. The larvae are then released into the plankton in the ocean where they may live for nine months before settling on a coral reef.

Large numbers of breeding lobsters are found only at Yule Island. It seems likely that these lobsters are an important source of recruitment for the reefs in Torres Strait. Researchers in PNG have released drift buoys at Yule Island which indicate the wind and currents could help the larvae move back to the Torres Strait. Even with this clue, once the eggs have hatched at Yule



Top Yule Island divers with their catch. **centre** Ornate rock lobster in coral den. **bottom** Yule Island. **insets** Diver comes ashore; Yule Island canoe; lobster seller at Pokama market.



Island, the life cycle of the ornate rock lobster remains a mystery. Not only have researchers been unable to track the larvae but the adults seem to disappear to.

Lobsters in breeding condition start appearing at Yule Island during December each year. Females breed continuously during the season but, towards the end of March, fewer lobsters are found until, by the end of April, they are virtually absent from the reefs



ference is that the ornate rock lobster cannot be caught in traps or pots. It is not clear why the lobsters avoid entering pots but, as a result, the lobster fisheries in the Torres Strait and Gulf of Papua must rely on divers.

As the lobsters move between Australia and PNG during the course of their life cycle, they are the target of several different groups of fishermen. There are lobster fishermen on all the inhabited islands in the Torres Strait, from Daru in the north to Thursday Island in the south. Many operate from the islands, using dinghies to fish the reefs before returning to the island to clean and process the catch. Others work on freezer-boats which operate as mother-ships and allow the fishermen to work the more remote reefs more easily. For several weeks at a time, these boats are home to six or more dinghies and their crew, returning to port only to unload and refuel.



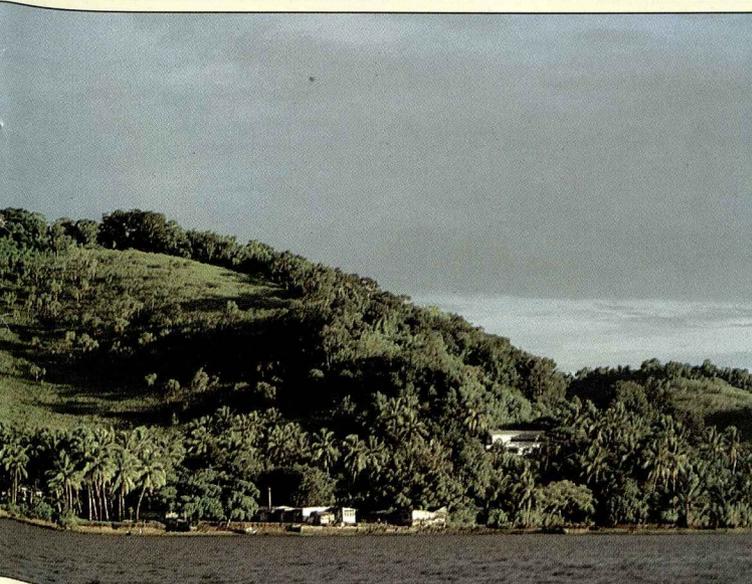
around Yule Island. Small numbers of lobsters are caught by fishermen all year but these animals are not in breeding condition.

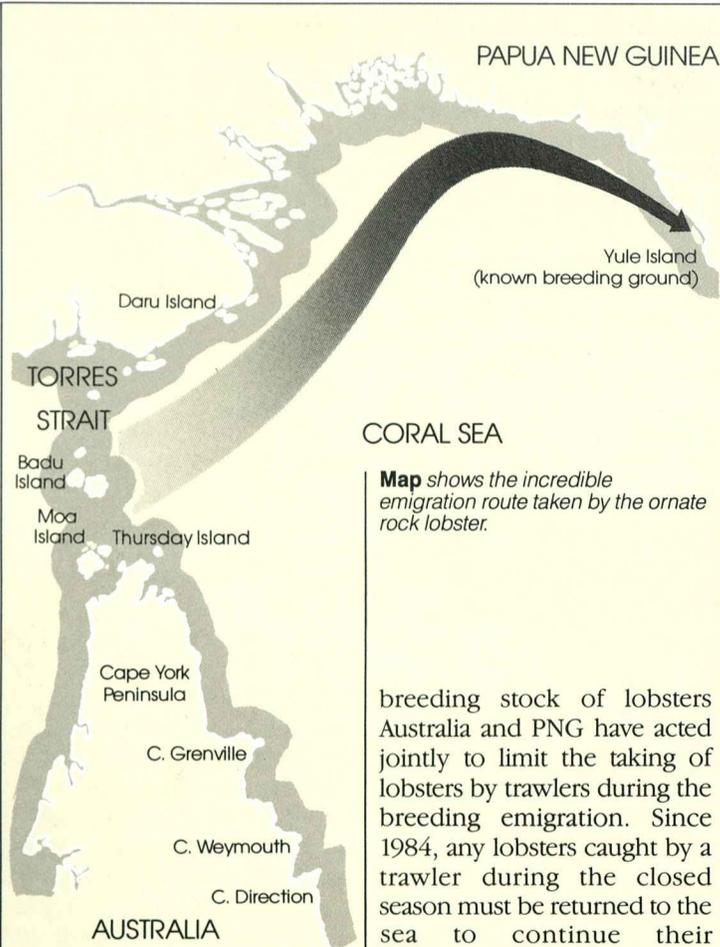
The disappearance of the lobsters at the end of an emigration that may have taken six months and more than 500 kilometres is an intriguing conclusion to a remarkable story. It has been suggested that the combined stress of emigrating and breeding is enough to result in the death of most of the lobsters. The lobsters at Yule Island certainly appear to be in poorer condition than those elsewhere, but whether there are mass mortalities or whether the lobsters simply move into deeper water has yet to be established. Finding a solution to this mystery is one of the aims of the joint research program being carried out by CSIRO and the Department of Fisheries and Marine Resources.

The ornate rock lobster differs from the more familiar rock lobsters found in southern waters of Australia. While it grows much faster and has a shell which is strikingly patterned, the most important dif-

fering is that the ornate rock lobster cannot be caught in traps or pots. It is not clear why the lobsters avoid entering pots but, as a result, the lobster fisheries in the Torres Strait and Gulf of Papua must rely on divers. As the lobsters move between Australia and PNG during the course of their life cycle, they are the target of several different groups of fishermen. There are lobster fishermen on all the inhabited islands in the Torres Strait, from Daru in the north to Thursday Island in the south. Many operate from the islands, using dinghies to fish the reefs before returning to the island to clean and process the catch. Others work on freezer-boats which operate as mother-ships and allow the fishermen to work the more remote reefs more easily. For several weeks at a time, these boats are home to six or more dinghies and their crew, returning to port only to unload and refuel. Although some divers use compressed air to work in deeper waters, most prefer the bare minimum of equipment, usually only a mask, flippers and a small spear. They work in teams of two, with the diver standing in the bow of the dinghy directing the crewman to likely fishing spots. The lobsters shelter under lumps of coral or rocks called bommies. When they reach a bommie, the diver leaps into the water and searches for lobsters while the dinghy circles, ready to take any lobsters the diver can spear or in readiness for the diver to climb aboard and move on. By fishing in this way, moving constantly from bommie to bommie across the reef, the divers cover a large area.

During the breeding emigration when the lobsters move off the reefs into deeper water, they are safe from the divers, but face new problems. They must move through prawn fishing grounds in which large trawlers operate for most of the year. The lobsters have formed large groups by this time and are especially vulnerable to trawling. In order to protect the





Map shows the incredible emigration route taken by the ornate rock lobster.

breeding stock of lobsters Australia and PNG have acted jointly to limit the taking of lobsters by trawlers during the breeding emigration. Since 1984, any lobsters caught by a trawler during the closed season must be returned to the sea to continue their emigration.

The lobsters encounter the last fishermen at the end of the breeding emigration. When they move onto the shallow reefs around Yule Island, they are met by the canoes and nets of the local fishermen. The lobster fishery around Yule Island is a traditional fishery which has been operating in the same way for hundreds of years. Each lobster is caught by hand in a tangle-net and then carried alive to the market. Although a large proportion of the catch is bought by the local processing factory, a small but important part of the catch is used by the fishermen in local markets to obtain fruit and vegetables that are scarce on the island. In this respect the lobsters are an important part of the traditional economy of the area.

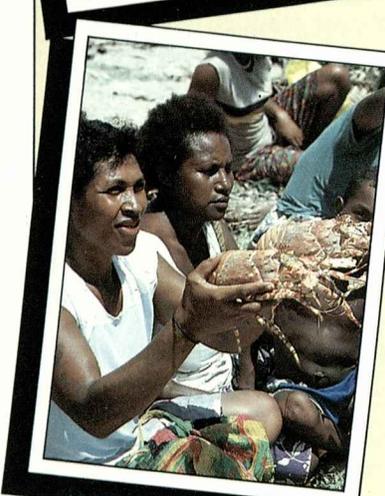
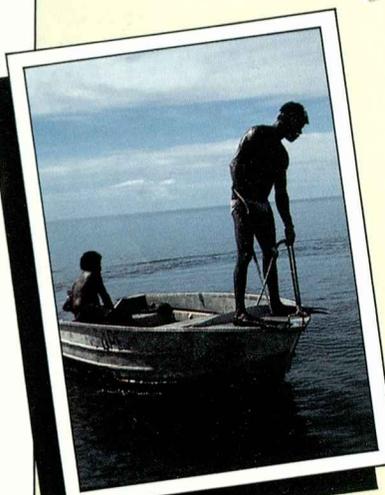
The fisheries for the ornate rock lobster span two nations and involve fishermen who have different cultures and beliefs. A lobster that begins its life on a reef on the northern coast of Australia might end up



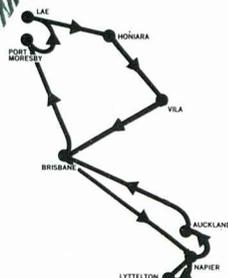
Above Female lobster with egg mass. **insets** Divers at work; Pokama market lobster sellers.

being cooked in a pot in a fishing village in PNG, or it might become one of the thousands of rock lobsters that are exported to the United States. It may evade all the fishermen to join the many lobsters that breed at Yule Island and then disappear.

Today the fishermen at Yule Island continue as they have done for centuries: if the weather is good and the tide is right, they can make good catches. They have never needed to know from where the lobsters come nor where they go but, as the demand for lobsters moves from the traditional to the commercial, increasing pressure will be placed on this resource. We have to understand the life cycle of the lobsters if the fisheries are to have a future.



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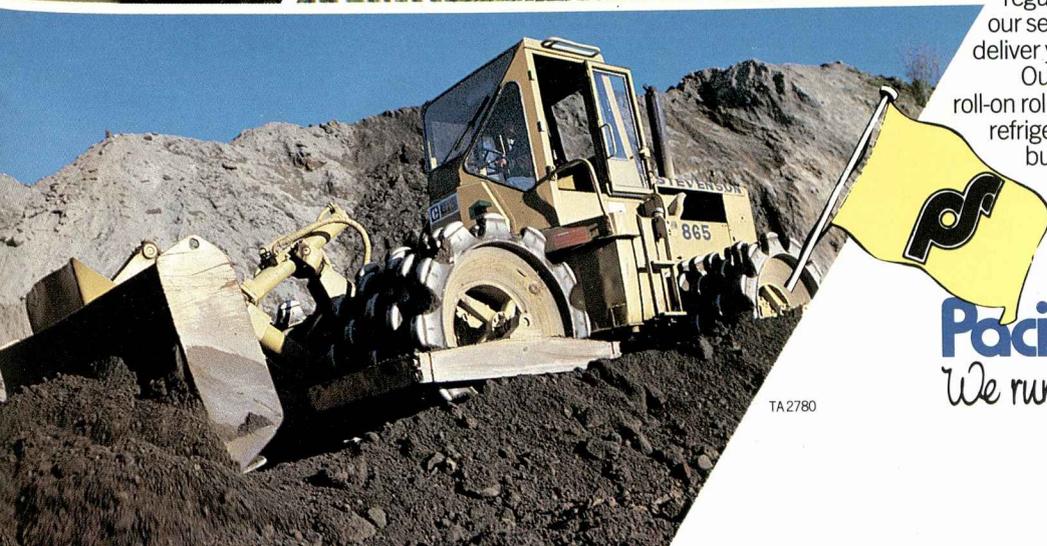
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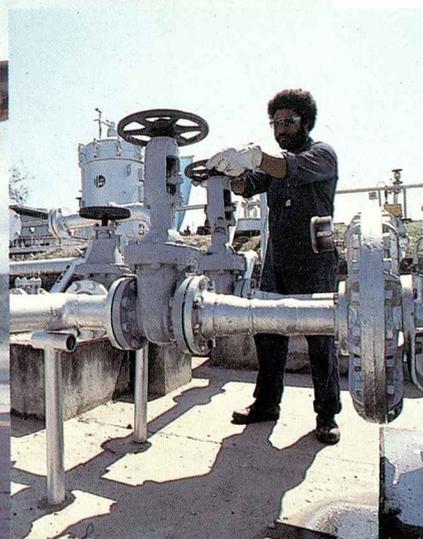
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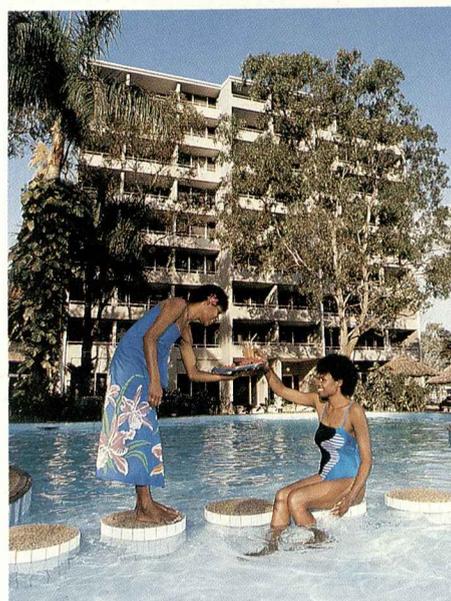
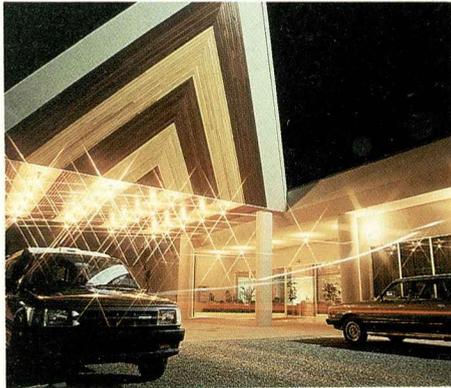
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