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GEORGE ALDEN SANFORD

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## INTO PRIMEVAL PAPUA BY SEAPLANE

### Seeking Disease-resisting Sugar Cane, Scientists Find Neolithic Man in Unmapped Nooks of Sorcery and Cannibalism

BY E. W. BRANDES, PH. D.

*Principal Pathologist-in-charge, Sugar Plant Investigations, and Leader of the  
New Guinea Expedition*

IF TO-DAY a stone-age man appeared naked on Broadway, armed with spear and shield or carrying the severed head of a tribal enemy, he might block traffic; for he vanished, in the popular mind, with mastodon, mound builder, and saber-toothed tiger. Newspapers print the item now if a peasant plowman in France merely turns up an ancient stone ax or a tooth necklace, relics of those who toiled, fought, and died before Babylon was built or Moses got stone Tablets of the Law.

Now it is only from wax figures in museums that we commonly get any hint of how our neolithic ancestors lived. There, in glass cases, we see them making tools of polished stone for chopping out their canoes, or for planting haphazard gardens in jungle clearings. "Think of making a boat with no tool but a sharp rock!" one hears museum visitors exclaim. "What a difference the centuries make! Wouldn't primitive man be astonished if he could see us now, with our radio, our high-power rifles, and flying machines!"

#### NEOLITHIC MAN STILL WALKS THE EARTH

I can say that he would. Moreover, he was!

For the bald truth is that neolithic man has not vanished entirely. In certain far

nooks and crannies of the world he lives now just as primitively as he did uncounted thousands of years ago. I found him just so when I alighted from a plane before a cannibal camp in the remote jungles of New Guinea and was mistaken for a god!

When his first panic was over, I had a chance to study him at work and play. So it came that I saw him fashion his rude stone ax, and tip his arrow with the hard, sharp, bony toenail of a cassowary. He wanted to trade me smoked human heads for old safety-razor blades or empty cigarette tins. To him I, in my "big hawk," as he called it, with my odd clothes and mysterious weapons, was as much of a curiosity as he would be to us should he come now to Broadway. Perhaps even more so; for in all probability he had never even heard of a white race.

Ours was a queer experience. Put yourself in our place: face to face with naked wild man at the very dawn of reason, barely groping as yet from brute instincts and abysmal urges, his elemental appetite as yet untempered by the softening conventions of the life struggle as we know it.

In the weeks that we spent with him, how grimly his primitive manners and





ALL HULA WANTED TO INSPECT THE EXPEDITION'S SEAPLANE (SEE, ALSO, PAGE 256)

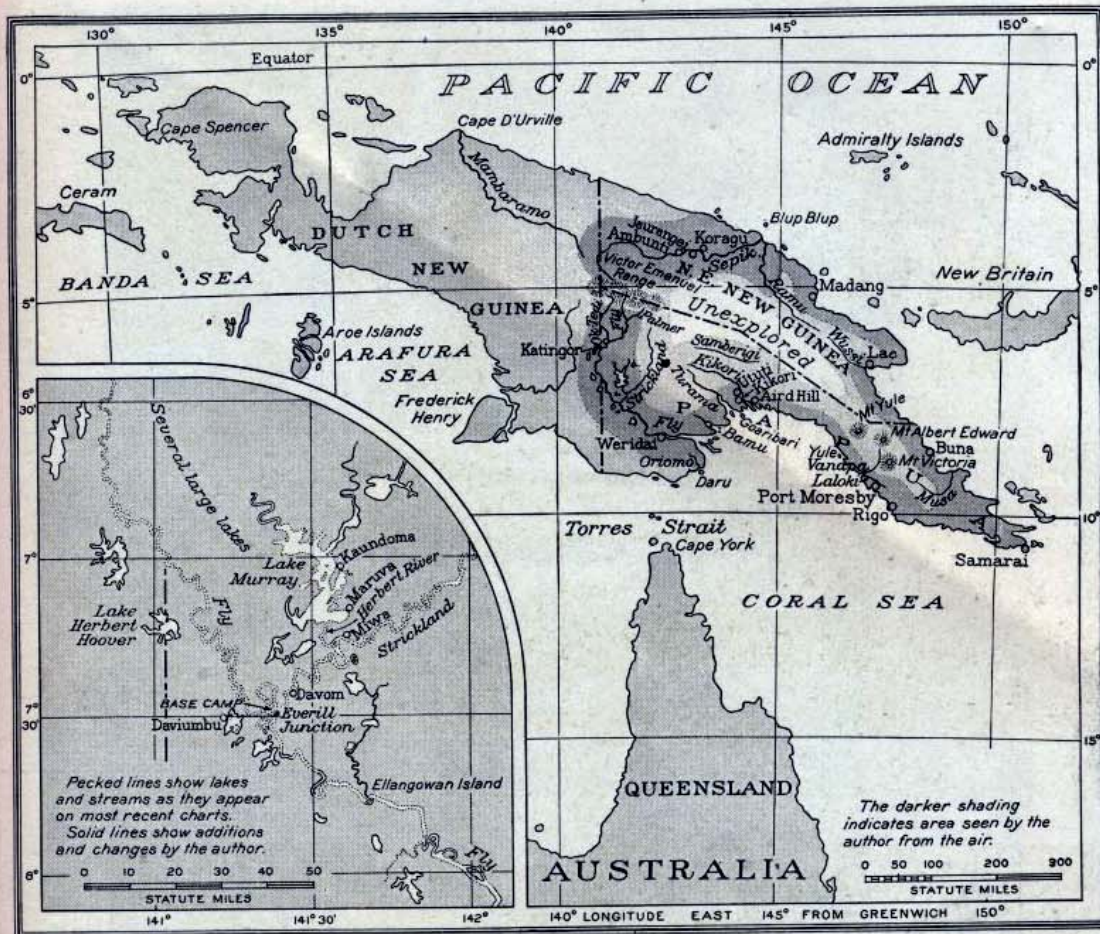


Photographs by R. K. Peck

LOOKING DOWN ON PORT MORESBY, CAPITAL OF PAPUA, FROM AN ELEVATION OF 10,000 FEET

On the slope of a hill at the left is a rain-water reservoir, built because of long dry seasons. It was at Port Moresby that the Expedition made its final preparations for the work in the interior.





Drawn by A. H. Bumstead

A MAP OF NEW GUINEA AND (INSET) A SKETCH OF THE TERRITORY IN WHICH THE AUTHOR MAPPED NEW LAKES AND CHARTED NEW RIVER COURSES

While the chief object of the New Guinea Expedition was to find new varieties of sugar cane, in their seaplane the members saw and were able to chart, by means of aerial photography, a large area, parts of which had never before been visited by white men. The dark-shaded area, comprising the greater portion of the eastern half of the island, is the part covered during the 57 flights by the Expedition's seaplane. New Guinea is the second largest island on earth, Greenland alone exceeding it in area. The western half of the island is a Netherlands possession; the eastern half is divided into two parts—the southern half, the Territory of Papua, is an Australian dependency; the northern half, formerly a German colony, Kaiser Wilhelm's Land, is now administered by Australia under a mandate from the League of Nations. North East New Guinea is the mainland of the mandate; the remainder includes the Bismarck Archipelago (New Britain, New Ireland, and Admiralty Islands) and a portion of the Solomon Islands group. The inset map, showing the Fly River basin, covers 11,000 square miles.

habits reminded us of what our ancestors once were actually like, and of what a long, hard struggle man went through on his magnificent moral climb from savagery up to civilization!

#### FLYING OVER UNMAPPED NEW GUINEA

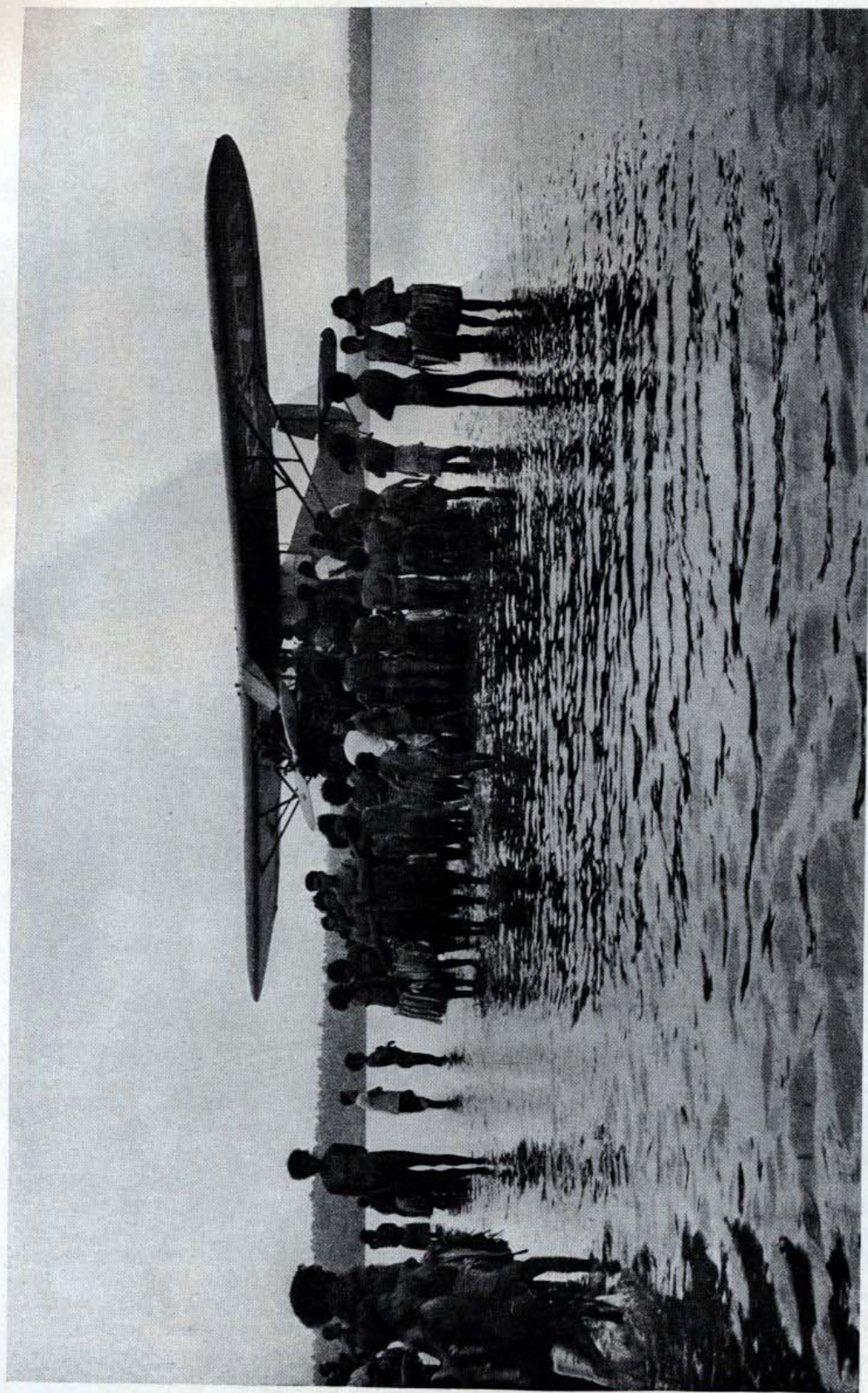
Startling it was, also, when now and then we saw these wild men act exactly as we ourselves still act when under the stress of fear or great excitement. In such mo-

ments of panic, we had to admit, there is not, after all, such a wide gulf between savage and civilized man.

The world's second largest island, New Guinea is called. Fifteen hundred miles long, it sprawls just below the Equator, in the western Pacific. About its high mountains terrific rainstorms rage, sending its rivers roaring across its vast lowlands in floods of Mississippilike proportions.

Here and there about the island's rim a



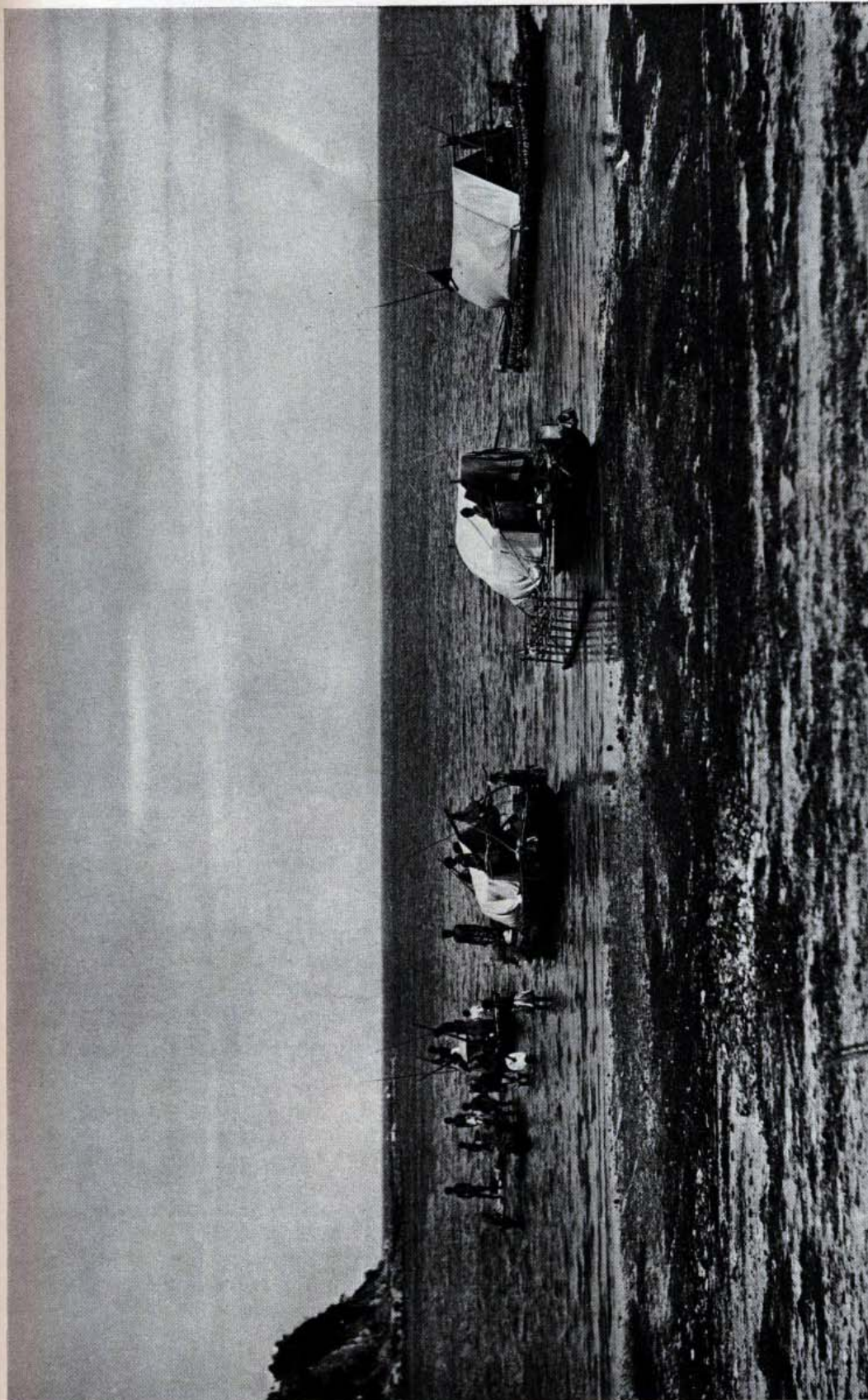


Photograph by R. K. Peck

CURIOUS NATIVES OF HULA WADE OUT TO VIEW THE FLYING MACHINE

Although these people, living near Port Moresby, long have been in contact with civilization, they made propitiatory offerings of food to the strange monster.



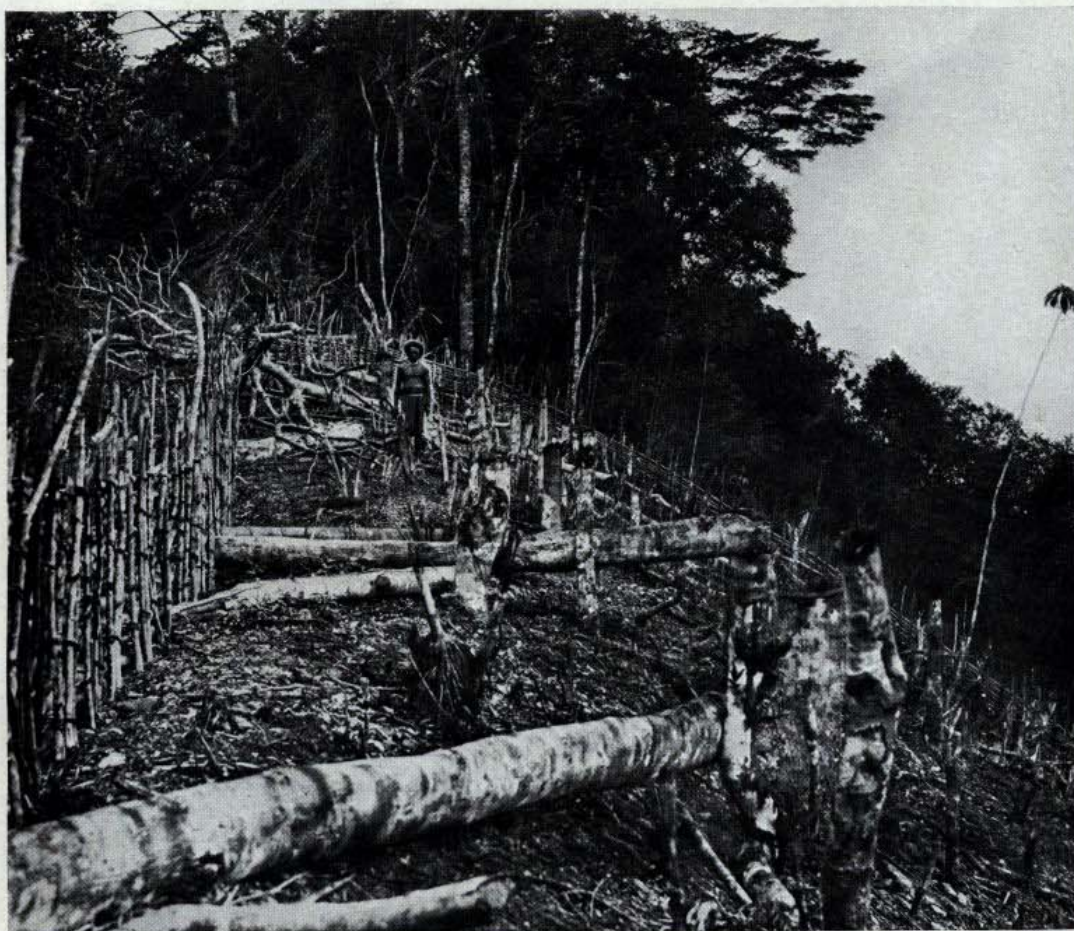


Photograph by Dr. E. W. Brandes

PAPUANS MAKE VOYAGES OF 100 MILES OR MORE IN THESE CRAFT

In their outrigger seagoing canoes (see, also, illustration, page 273) the natives arrive at Port Moresby to trade or "sign on" as laborers.





Photograph by Dr. J. Jeswiet

#### PREPARING A HILLSIDE FOR A GARDEN

In the mountains back of Rigo these natives are building crude fences or wooden stockades to protect their crops against the raids of bush pigs and wallabies.

few white traders, miners, and planters have gained a foothold. And yet, though it lies hard by the steamer lane from London to Sydney, its dark, evil interior is almost as little known now to the world at large as when daring Pacific explorers—Portuguese, Spanish, Dutch, French, and English—first cruised past its hostile shores centuries ago.

Time and again, in the 57 flights, totaling more than 10,000 miles, which we made over its often unmapped lakes, jungles, and ranges, we realized how much exploring and surveying have yet to be done there before white men can really know all the truth about New Guinea and its less than a million human beings who people this island, which is nearly three times as large as the British Isles. A strange land it is, of coconuts, cannibals, and sor-

cery; of gorgeous birds of paradise and wattled cassowaries; of mountains, and of swamps alive with crocodiles, carpet snakes, leeches, and mosquitoes.

#### TO NEW GUINEA IN SEARCH OF SUGAR CANE

It was for the U. S. Department of Agriculture that our small expedition was sent to New Guinea. We went primarily to seek a disease-resisting sugar cane, to revive a sick industry in our own Southern States.

To Canberra, new capital of Australia, we went first, for without the generous aid and coöperation of that commonwealth's officials our exploration in Papua and the mandated Territory of New Guinea could never have been undertaken. Nor shall we ever forget the hearty hos-





Photograph by Dr. J. Jeswiet

SOME OF NEW GUINEA'S PLANTS ARE AS SAVAGE-LOOKING AS THE ISLAND'S  
HUMAN INHABITANTS

In a swamp a few miles from Port Moresby stands this sago palm, with its odd aerial roots. Here, also, in deeper water, grow water ferns and huge *Erythrina* trees, whose floating, branched roots are clad with innumerable hairs, apparently for respiration.

pitality and the unselfish assistance extended to us by that patient, courageous group of Australians who are bearing the white man's burden on that vast and rich, but as yet untamed, isle.\*

The party included Dr. Jacob Jeswiet, Dutch sugar expert and world authority on the improvement and culture of the

sugar-cane plant; Mr. C. E. Pemberton, a seasoned explorer who has spent much of his life seeking in remote places for parasites of sugar-cane insect pests for the Hawaiian Sugar Planters Association; and Mr. Richard K. Peck, airplane pilot, of Elgin, Illinois, a veteran of the Stirling Expedition to Dutch New Guinea in

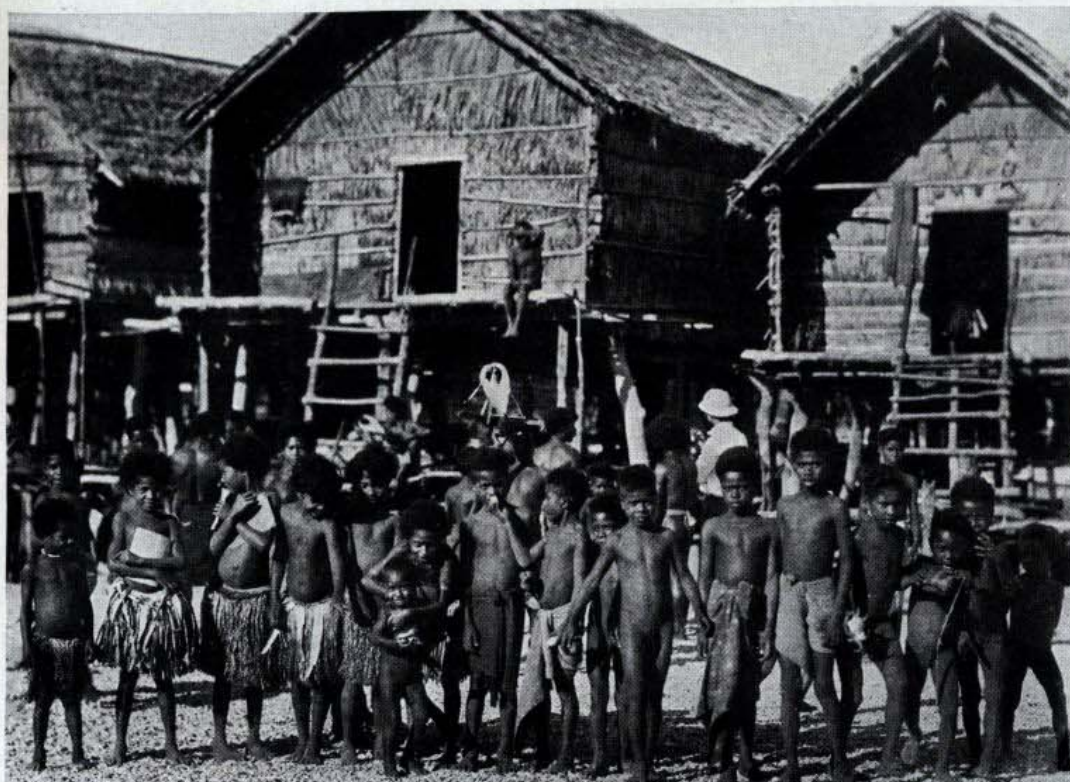
\* Among the host of friends, both individuals and institutions, who contributed to the success of our enterprise, Mr. Bror G. Dahlberg, of Chicago, who furnished the seaplane, and the tactful representatives of his company in Australia, whose assistance in securing an official hearing for our enterprise was indispensable, played leading rôles. To the officials of the Colonial Sugar Refining Company of Sydney, who cared for our collection of cane varieties, a duplicate set of which was planted at Sydney,

grateful acknowledgment is due. The Australian Prime Minister, the Right Hon. Stanley Melbourne Bruce; the Lieutenant Governor of Papua, Sir J. H. P. Murray; the Acting Administrator of Papua, the Hon. Staniforth Smith; the Administrator of the Territory of New Guinea, Brig.-Gen. E. A. Wisdom, and, last but not least, Australia's war-time Prime Minister, Mr. "Billy" Hughes, all extended courtesies and essential aid far beyond what we could reasonably have hoped for.





THREE ALERT WOMEN FROM THE VILLAGE OF HULA (SEE PAGES 254, 256, AND 272)



Photographs by Dr. E. W. Brandes

NEAR WHITE SETTLEMENTS, SCHOOLS FOR NATIVES HAVE BEEN ESTABLISHED

Among these mission pupils at Elevala (see pages 265 and 277), two are seen with books. Many native children speak fair English and play cricket and football with much enthusiasm.





SMALL FAMILIES ARE THE RULE IN PAPUA: MATRONS OF ELEVALA AND THEIR BABIES

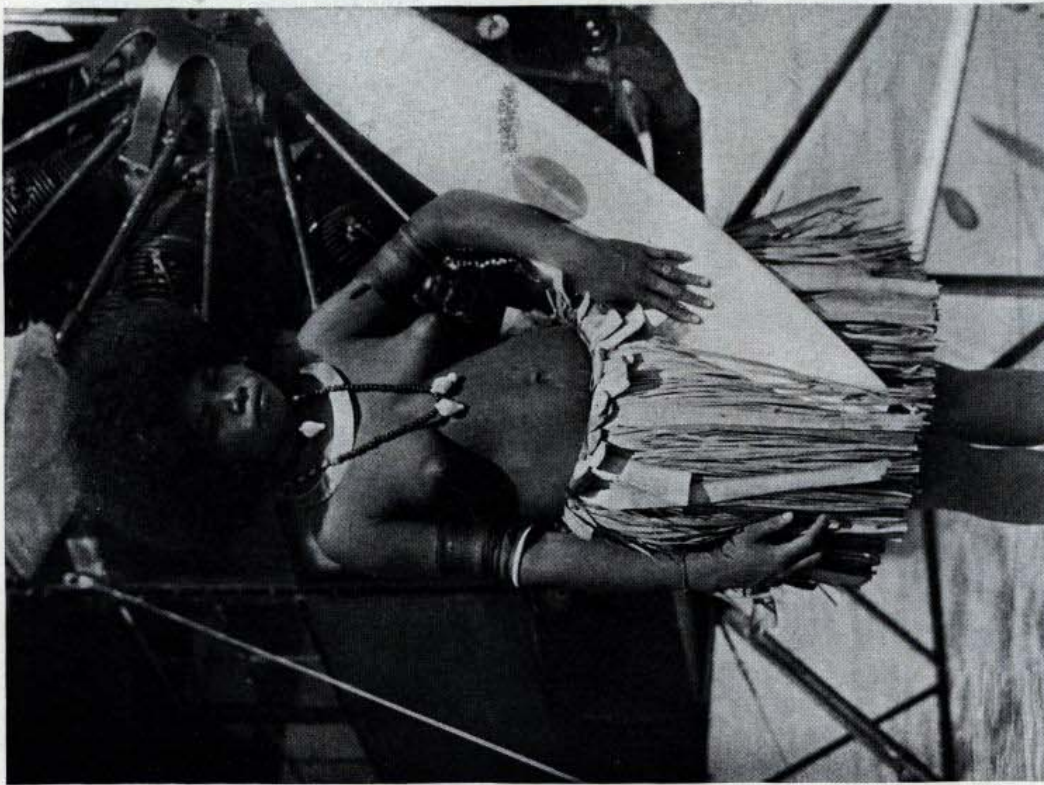


Photographs by Dr. E. W. Brandes

FISH NETS USED BY PORT MORESBY NATIVES

All coastal natives of New Guinea are expert fishermen. Remote as they are from civilization, they make nets similar to those used in other seas (see, also, text, page 272).





AVIATION INTERESTS WOMANKIND EVEN IN NEW GUINEA

This robust young Melanesian woman from the village of Hula (see, also, pages 254 and 256), with her huge mop of frizzly hair, is of the type found along the southeast coast of the island.



MAN AND WIFE POSE FOR THEIR PICTURE

He was fascinated by the whirl of the motion-picture camera and wanted to examine its machinery. Clasped about the woman's neck are the arms of her infant. The family lives near Port Moresby.

Photographs by R. K. Peck





Photograph by Dr. E. W. Brandes

TWENTY MILES FROM PORT MORESBY, OVER THE ONLY STRETCH OF IMPROVED ROAD IN ALL PAPUA, THE TRAVELER REACHES RONA FALLS. The main leap of this impressive cataract of the Laloki River is from 80 to 90 feet. While its hydroelectric possibilities are considerable, there is no prospect of its early development, for the largest city in Papua, Port Moresby, has only 300 white inhabitants.





Photograph by Dr. J. Jeswiet

#### DESPITE CRUDE IMPLEMENTS, PAPUANS CULTIVATE MANY PLANTS

In a forest clearing near Rigo grows this garden, in which are grouped, in disorderly fashion, taro, cane, yams, and bananas (see, also, text, page 271).

1925-26, to whose skill and judgment we owe much of the success of the Expedition.

#### THE FIRST FLIGHT

To Samarai, a tiny island off the south-east tip of New Guinea (see map, page 255), we shipped our seaplane when full official sanction of our agricultural adventure was granted; and it was from Samarai, our plane duly lowered to the sea and fueled, that our first flight of inspection to Port Moresby, our main base of supply, was made. Cheered by a farewell toot from the steamship *Montoro*, Peck and I took the air and headed for "Port," as the island's biggest white colony is called.

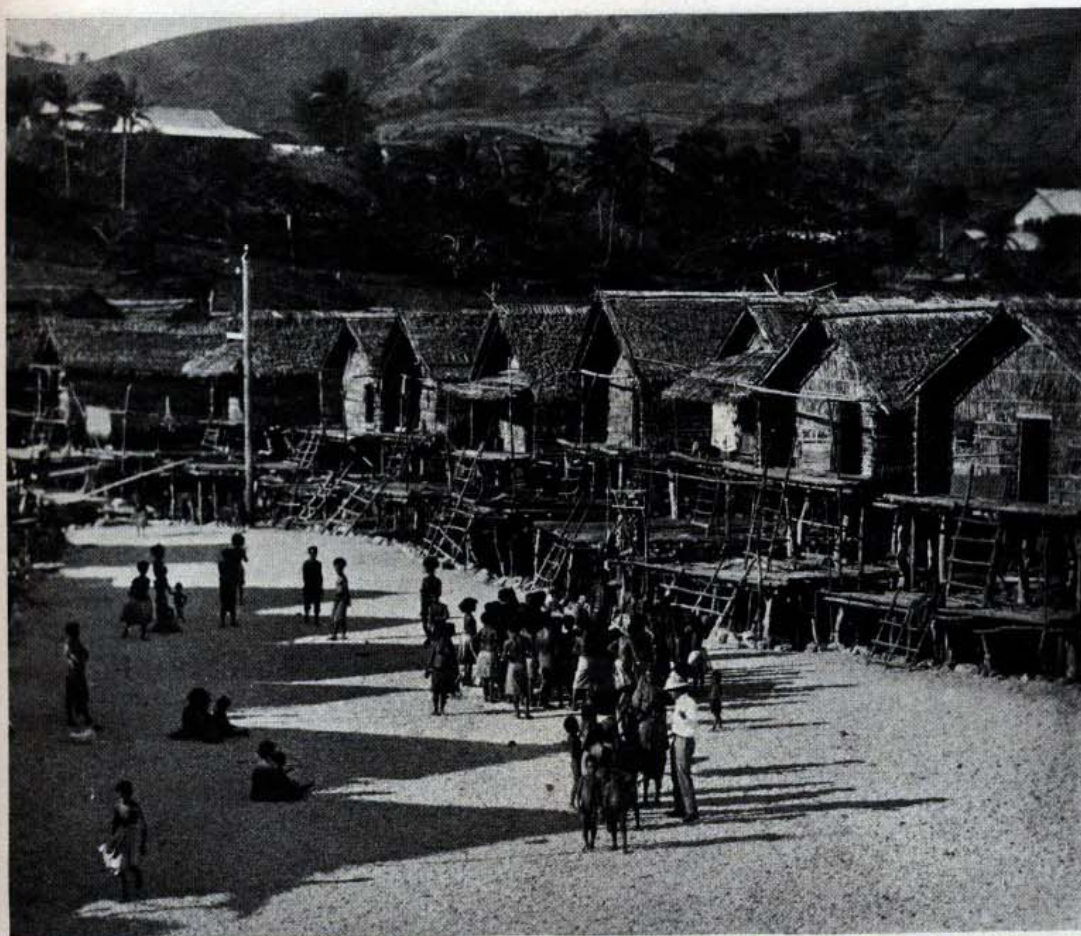
The 260-mile flight along the southern coast from Samarai to Port Moresby

hinted at the scenery we were to enjoy for the next three months—an amazing panorama of submerged coral reefs, palm-fringed beaches, and wooded hills, terminating far inland in majestic peaks mantled in swirling mists.

Birds floated lazily among tree tops, and in the clear blue waters sharks could be seen stealthily nosing their way among the reefs. Native villages nestled on promontories, with well-beaten pathways meandering back to garden patches cleared in the jungle.

Now and then we saw geometric plantings of coconuts over wide coastal areas, each with its neat plantation house of European design and its own private sailing vessel anchored in a sheltered cove adjacent to it. We descended for a close look at a platformed seagoing double ca-





Photograph by Dr. E. W. Brandes

NIPA SHACKS AT ELEVALA (SEE, ALSO, PAGES 260 AND 277)

noe with "crab claw" sails, much to the alarm of its native crew, who frantically tried to get away.

This shore line east of Port Moresby is cut by deep bays, safe refuge for small craft. We passed broad, black mangrove swamps crossed by serpentine rivers pouring chocolate-colored water into the blue Pacific. On our maps many of these rivers were shown much straightened out, free of the oxbows, bends, and kinks which they actually achieve, as seen from the air. Often, too, these rivers abandon their beds and take new courses.

#### VILLAGES BUILT ON STILTS OVER WATER

Nearing Port Moresby, we saw villages that were built over the sea—brown-thatched houses poised like spindle-legged "water striders" upon the waves (see illustrations, pages 277 and 279). Originally designed for protection of maritime vil-

lagers against bloodthirsty hill tribes, this style of city planning is now encouraged by the Government for sanitary reasons. To each house is tethered its dugout canoe, apparently still ready for any emergency.

The parched hills about Port Moresby came now into view. Soon we raised the clean-looking town between two hills of an elevated peninsula that almost completely locks the harbor from southeast trade winds. The peak of the landward hill is capped with a large field of corrugated sheet metal, the contour of which is designed to catch and direct rainwater into a large, covered, concrete reservoir, which provides water for use when the ordinary roof tanks go dry.

Port Moresby had a population of about 300 whites during our sojourn. Most men are in Government service or trade.

Its chief exports are copra, rubber, copper, gold, bêche de mer, or trepang (a sea





Photograph by Dr. E. W. Brandes

THE "VANAPA," SUPPLY SHIP OF THE EXPEDITION, BEING OVERHAULED OPPOSITE  
PORT MORESBY

Some of the coast men of New Guinea make good sailors. Here the *Vanapa's* mop-headed crew is calking, painting, and overhauling gear, making the vessel ready for its first cruise up the Strickland River (see text, opposite page).





Photograph by Dr. E. W. Brandes

PILOT PECK, MR. IVAN CHAMPION, A PAPUAN GOVERNMENT OFFICIAL, AND AN AMERICAN WOMAN ARTIST

Much to the surprise of the members of the cane-hunting expedition, a young American artist and her companion suddenly appeared aboard the supply boat *Vanapa* after it had left Port Moresby. The two women accompanied the party up the Fly River as far as Everill Junction and remained at the base camp two days. They were jokingly referred to as "stow-aways" by the members of the Expedition, but they had paid the captain of the ship passage money for their adventurous voyage (see text, page 285).

slug exported to China, where it is esteemed a delicacy in making soups), pearls, and trochus shell. Luggers engaged in the pearling industry are licensed at Daru, but as the Queensland boundary extends in these waters to within a few miles of the Papuan coast, most of the pearls and pearl shell obtained by them are not credited to the Territory of Papua.

#### OUTFITTING AT PORT MORESBY

We spent the ten days in Port outfitting and supplementing stores shipped from Australia and America. We chartered an auxiliary ketch, the *Vanapa*, of about 100 tons burden, to transport most of our men, our fuel, supplies, and scientific instruments to some yet-to-be-found point on the Strickland River, which would later become our first base camp. In general, we had decided on the left bank of the Strickland River, above its juncture with the Fly, in a mysterious

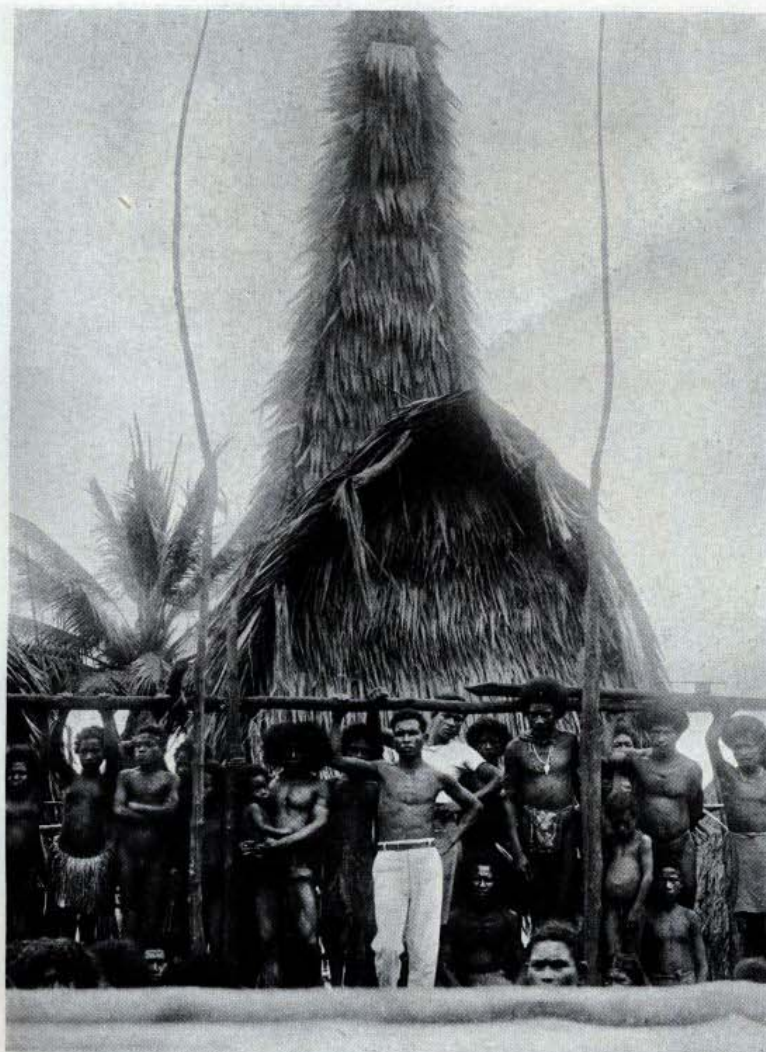
region regarded by coast folk with superstitious awe.

Those on board included Ivan Champion, now Assistant Resident Magistrate, and a detachment of native police, detailed by the Government to guard us.

Camp making and direction of transport was in the hands of a wandering son of California, Mr. Roy Bannon, who reached this far strand years ago. In his charge were the signed-on "boys," including Gano, the cook; Euki, a reputed wash-wash boy; Emere, a slight, furtive individual, chosen, because of his lack of weight, as "crew of airplane"; and Nape, my personal boy, truculent, but a straight, well-muscled fellow, clever with bow and arrow.

On board, also, were 1,150 gallons of aviation gasoline in 10-gallon drums, tons of tinned food and rice, 3 portable boats with outboard motors, 6 wall tents and 30 tent flies, and the usual complement of





Photograph by R. K. Peck

THIS TEMPORARY THATCHED "STEEPLE" CELEBRATES THE BUILDING OF A NEW HOUSE

A Hula "town boy," in white trousers and with civilized haircut, stands in the foreground.

cots, blankets, fine-mesh sleeping nets, arms, ammunition, hospital goods, and an assortment of scientific supplies, including still and motion-picture cameras.

To the accompaniment of somewhat blasphemous observations by the skipper, the *Vanapa's* sputtering motor finally sensed its master's voice and started. In a downpour of rain the little vessel nosed out through the inlet into a half gale and disappeared from our view.

#### WE EXPLORE THE DELTA DIVISION

With our other scientists, I remained in Port Moresby, utilizing the three weeks

required by the *Vanapa* to reach our base camp to make air trips to various rivers on the south coast.

These first trips were all made from Port Moresby as a base, and we did not fly more than 250 to 300 miles away from Port in a direct line, nor did we remain out more than three days, on account of the limited food supply that could be carried.

One visit was made to Kikori, the Government station of the Delta Division. It stands on the Kikori River, about 30 miles inland. This coast country for more than 100 miles is low and flat. For the most part it consists of innumerable river deltas. Large areas are covered by mangrove and sago palm swamps.

Sago is the staff of life for natives who dwell in the tidal marshes, in houses standing on piles above the morass. Generally the villages are situated on the banks of sluggish streams.

The houses themselves are "distinctive," to borrow from a Western salesman's vocabulary, having a huge, gaping entrance extending from floor to ridgepole. The men's "clubhouses" may be several hundred feet long, low at the rear, but rising to an overhanging peak 50 or 60 feet high in front; their resemblance to a snake with wide-open jaws is remarkable.

The social arrangements and material culture in this part of Papua are interesting.

Although promiscuous mating still occurs during the observance of certain ceremonies, in which many villages may



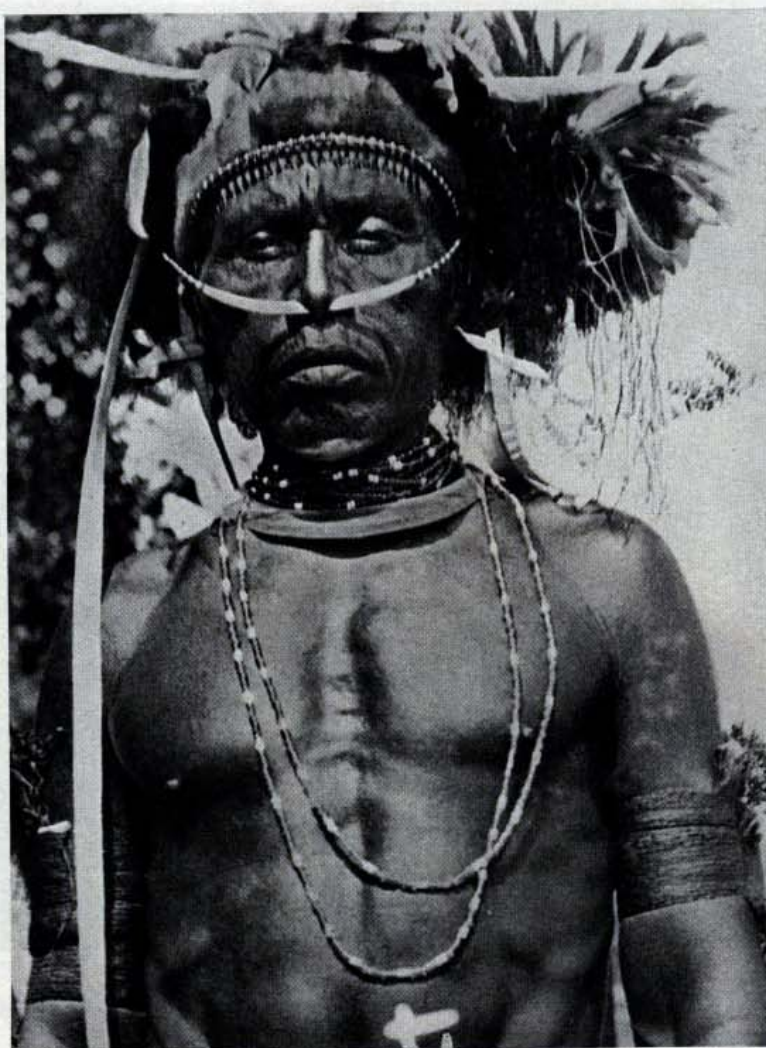
participate, marriage is old among these Delta people and is the basis of family and clan life. Parents may make marriage plans for their children, but these juvenile betrothals are apparently tentative, pending the decision of the children themselves when they attain years of discretion.

#### LACK OF WOMEN PREVENTS PRACTICE OF POLYGAMY

In case the marriage does not take place, any payments of ornaments or other articles made by the boy's parents are returned by the family of the girl. No feasting or other ceremony is observed at a marriage. The price paid for the bride is not ruinous—just a few arm shells or other ornaments, a pig or a dog. A bride may leave her husband, but then all payments must be returned. While the affair may appear quite mercenary, it is observed that a certain degree of consideration is given to the inclination and wishes of the girl, both before and after marriage.

The only deterrent to polygamy is the lack of women, which in parts of New Guinea is due to female infanticide. As it is, about one-fourth of the married men in this area have more than one wife and some have a half dozen or more.

This results in a fairly large proportion of young bachelors, who dwell in the *ravi*, or men's clubhouse. The married men also repair to the *ravi* at intervals, for the sake of a little peace and quiet or to participate in feasts.



Photograph by Alfred Gibson

#### HE DRIVES A BUS IN PORT MORESBY

His nose ornament, made from a big clamshell, is worn only in ceremonials—not while he is pursuing his occupation of chauffeur.

The medium of exchange in this part of the island is the arm shell, a section of the shell of a sea snail, cut and finished so that it forms an armlet or bracelet two or three inches wide. Other durable ornaments are also used, such as dog and walaby teeth and disks or rings cut from pearl shell; but usually commodities are bartered directly.

#### CLOTHING IS NEGLIGIBLE OR NON-EXISTENT

Dress is a simple matter. Boys up to about ten and girls up to six wear nothing. A man wears a small band of tapa cloth; one end hangs as an apron. Women's





Photograph by Dr. E. W. Brandes

CARPENTERS SKILLFULLY SHAPE A DINGHY FROM A LOG, ON THE BEACH NEAR  
PORT MORESBY

The inside of the boat is not burned out, but laboriously chipped away.

dress consists of a band of strawlike material made by shredding sago leaves. It is held in place by a fiber string or bark belt around the waist, and the two loose ends are tucked up under the belt at the rear and project backward like a tail. Very old men go naked.

A MARRIED WOMAN SHAVES HER HEAD

Men and women have the nasal septum and ear lobes pierced, and wear in the former elongated, pencil-shaped ornaments made of the white shell of the giant clam, and in the latter rolls of palm leaf, loops of cassowary quills, or selections from an assortment of other bone and shell jewelry. Women commonly have a series of V-shaped scars, like chevrons, on the leg, upper arm, or breast. Although the natives were questioned, we were un-

able to discover any significance for these marks.

Men are clean shaven except when in mourning or when old. Shaving is painful. It is done by looping a fiber about each hair and jerking it out. The barber's patron lies on his back and the barber sits on the sufferer's chest. Beards may be decorated with lumps of mud or other ornaments.

Until she marries, a girl wears her hair long. Matrons shave it off completely or bob it to about one inch in length. Sometimes small patches or tufts remain, in more or less geometric designs, and shell disks are tied to these, being fastened close to the head like "curl papers."

The Delta people are sago eaters, and the slow-growing palms may be private property, having been planted by the





Photograph by Dr. E. W. Brandes

THE SWIFT-RUNNING LALOKI RIVER (SEE, ALSO, PAGE 263)

Near here is one of the two operating rubber plantations in Papua. This site was selected as a propagating garden or intermediate depot for the Expedition's cane collection, which, to be kept alive, had to make the journey to America in relays.

owner's father, or they may be wild trees growing in the swamps remote from the village. When sago is required, the man will go to the tree selected, cut it down, and float the trunk to the village, the fabrication of the starch being turned over to the women.

Sago is supplemented by other products of the swamps and jungle, and a rude horticulture is carried on in clearings where the land is a little more elevated. The trees are cut down with trade axes and suffered to lie where they fall, the limbs being trimmed off and dragged away. Planting is done by thrusting a pointed stick of black palm into the ground and moving the free end back and forth to widen the hole. Joints of sugar cane, banana "bulbs" and cormels of taro

are planted at random among fallen trees. Tobacco, manihot, coconuts, sweet potato, and breadfruit also grow here. Weeding is accomplished by tearing out the undesired growths by hand or with a trade knife, but the weeds sooner or later are responsible for abandonment of the garden. Apparently the native prefers to clear a new patch rather than face the drudgery of eternally fighting the weeds. In general only two successive plantings are made in a clearing, after which it is quickly reclaimed by the jungle.

A CANOE IS THE HUNTER'S OUIJA BOARD

Variety of food is provided by hunting and fishing. The native always carries his bow and arrows in his canoe or when walking in the woods, on the chance of





Photograph by Dr. E. W. Brandes

## A HULA MAID SMILES INTO THE AUTHOR'S LENS

encountering a bush pig (see page 303) or cassowary (see page 326). The pig is a dangerous beast when wounded and the cassowary is no mean adversary; so hunting parties of a dozen or twenty men are preferred for protection and to increase the chance of returning with game.

A record of kills in hunting is often kept. In front of a house on the Kikori River I saw a device resembling a xylophone, made of tubes of bamboo of unequal diameter; this, it developed later, was the owner's wild-boar score.

Fishing is done by women as well as men. Girls may be seen wading about in the small streams, each provided with two conical traps held by the apical ends. These they thrust down at intervals, attempting to ensnare shrimp or fish. Such traps are shaped like canary or parrot cages and are made from strips of sago leaf. Nets, seines, and hand lines of various kinds are also used in the rivers and on the beach (see page 261).

## FISH ARE HUNTED WITH BOW AND ARROW

Shooting fish with bow and arrow is practiced here, as in most other parts of New Guinea. The fish arrow has four

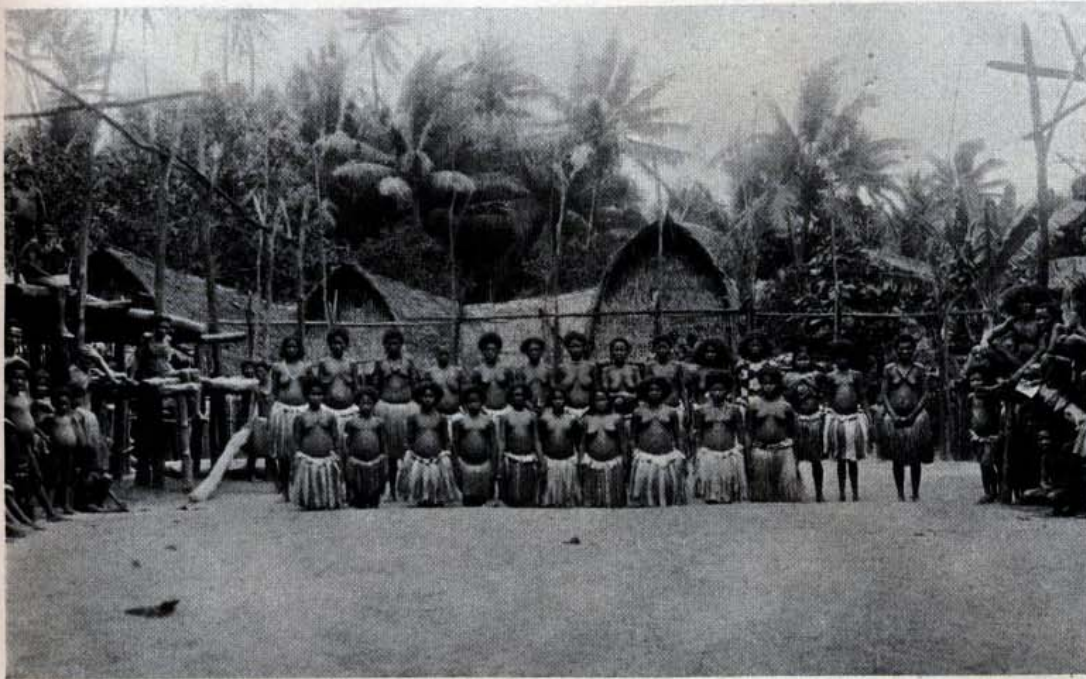
prongs of hardwood, not barbed but spread apart, at the point of attachment with the shaft, by means of a wooden plug bound between them. Spears for fish are much the same, but are larger and have more prongs. Fishing with these implements is done mostly at night with the aid of flares.

The large crabs of the Gulf of Papua are caught in great abundance and are an important trade commodity. With crabs the coast people of the Delta barter for tobacco with the inland tribes.

Just a short time ago there were recurrences of the violence and bloodshed that used to be common in the Delta Division. The natives of one of the Goaribari villages had been hostile toward natives on the Turama River, and a series of killings on both sides finally terminated in a massacre at a supposed love feast which was to mark the termination of hostilities. This was followed by a retaliatory raid, with taking of heads for trophies. The whole complicated matter was the subject of a Government inquiry at the time of our first visit to the Kikori.

At the Kikori police station a dugout paddled out to the seaplane to take us ashore.





Photograph by R. K. Peck

GIRLS ON HOOD POINT, NEAR RIGO, WEAR SKIRTS OF FRAYED SAGO LEAF



Photograph by Dr. E. W. Brandes

OUTRIGGERS PREVENT A CANOE FROM CAPSIZING IN ROUGH SEAS

On the islet in the background stands a village jail, tenanted largely by first-degree murderers. When the author visited the native jail at Kikori he found that of the 112 prisoners practically all were serving a few months each for first-degree murder (see, also, text, page 274).





Photograph by Dr. E. W. Brandes

STERN-VISAGED MATRONS FROM THE COAST EAST OF PORT MORESBY

Their hair is less kinky and their skin a bit lighter than that of the average Papuan, indicating an admixture of Polynesian blood. The necklace worn by the woman in front is made of clamshells.

We were hospitably received by the local manager of the Government rubber farm, all the officers being absent in connection with native troubles. We had thought to find a more pretentious settlement because of the large, bold-faced type used to indicate it on the map.

The station is on a small hill rising abruptly about 80 feet above the river. Short lengths of logs, secured by stakes, serve the purpose of treads and risers and enable one to climb to the top—a feat that would be difficult without them, on account of the rain that falls almost continually on the red, slippery clay at this season.

On top of the hill is a quadrangle of thatched buildings surrounding a level parade ground, bordered with crotons, hibiscus, and other brilliantly colored plants. The buildings consist of a headquarters house or office, barracks for the native police, a jail and infirmary for prisoners, storehouses, and three dwellings for the white personnel. We were told that the prisoners were all murderers, and I be-

lieve there were 112 of them incarcerated in the jail at the time of our visit.

MOTHER AND DAUGHTER ALONE BUT SAFE  
IN NATIVE VILLAGE

On the day after our arrival we were able to ascend the river to the native village of Ututi in a launch furnished through the courtesy of Mrs. Robinson of Ogamobu, a rubber plantation several miles upstream, the only commercial enterprise in this whole area. This charming and resolute woman and her young daughter were living in a plantation house, with only the protection of a faithful and devoted "boss boy," who presided over the plantation labor in the absence of Mr. Robinson, who was temporarily at Port Moresby, more than 200 miles away. That such an arrangement could be even thought of is a wonderful tribute to the success of the Government's system of establishing law and order, or at least instilling into the minds of these rude savages that the white man and his property are inviolable.

We were able to collect cane in the





Photograph by Alfred Gibson

IN A DANCE AT HANUABADA THE LEADERS WEAR GIANT HEADDRESSES OF BIRD-OF-PARADISE FEATHERS

Hanuabada, like Elevala, is a native village on the outskirts of Port Moresby.

gardens of several villages on the way, and finally arrived at Ututi, on the creek of that name, a tributary of the Kikori. This village has an unsavory reputation to live down, as it was here that Patrol Officer Kirby a number of years ago received one of the diabolical barbed arrows in his lungs and lived for two days transfixed, as the arrow was so fiendishly designed that it could neither be pushed through nor pulled out.

#### GIGANTIC CIGARETTE HOLDER IS USED AS COMMUNITY PIPE

Ututi is elevated some ten feet above stream. It has a typical *dubu* (long house), which we were permitted to inspect after trading for sugar-cane specimens. A number of men, some clothed only in a shell pubic covering, lounged about, smoking the huge bamboo tobacco pipe or, more properly, cigarette holder.

This astonishing contrivance is about 2 or 3 feet long and 3 to 4 inches in diameter. It is open at one end, with a more slender detachable piece fitted at right angles into a small side-hole near the other end. The cigarette, rolled into a piece of

fresh banana leaf, is inserted into the slender piece and the smoke drawn into the large tube by sucking on the open end of the latter. The slender tube is detached and the pipe is passed from hand to hand, each man taking a draft of smoke through the small side-hole, after which the slender tube with smoldering cigarette is replaced and the process repeated.

Some of these pipes are artistically carved and highly polished.

Pitiful wrecks of dogs growled and slunk into dark corners as we passed through the long central corridor of the clubhouse. On either side were stalls partitioned off, presumably for the exclusive use of individuals to sleep in or as a repository for their trophies, weapons, utensils, and personal gear.

Hearths of undetermined material were built into the floor near the walls. They were heaped with ashes, some smoking and filling the place with an impenetrable haze, as there was no smoke outlet or provision for ventilation other than the generally flimsy structure with wide cracks in floor and walls. The interior was most gloomy, there being no windows





Photograph by Dr. E. W. Brandes

#### SOME PAPUAN WILD SUGAR CANE GROWS TO A GREAT HEIGHT

This clump of wild cane, *Saccharum robustum*, with Pemberton of the American Expedition in the foreground, was found on the Laloki River, near Prison Garden, about 17 miles from Port Moresby. The species may prove of value for breeding purposes because of its strength and size.

and in fact no openings excepting the total lack of front and rear walls. After a long walk we arrived at the rear "veranda," where a number of pig and crocodile skulls were on display.

More dogs howled in the bush behind the long house. The native dog has no bark; his voice is a long-drawn, quavering wail. They usually wail in unison and it is a distressingly human sound.

#### TOBACCO LONG KNOWN IN NEW GUINEA

We saw a few miserable-looking women, but not a single child in the whole village. Beside one of the family dwellings was a small planting of tobacco with attenuated leaves. Now, we have been brought up to believe that tobacco was

unknown, except in America, up to the time of Sir Walter Raleigh's famous introduction of the smoking habit to 16th-century English courtiers; but there is certainly evidence that it has been known and universally used in New Guinea for a long time.

Through our interpreter brought from Kikori Station, I learned that the seed of this particular tobacco patch was originally brought from the Samberigi, an isolated valley north of this place. This tobacco had ripe seeds, which we brought to Washington, and it will be interesting to learn if it is a species unknown to America.

Trade of a desultory nature is carried on by these people with the inhabitants of





Photograph by Dr. E. W. Brandes

COAST DWELLERS BUILT THEIR HOMES OVER THE WATER AS A SAFEGUARD AGAINST  
RAIDS OF HEAD-HUNTERS FROM THE HILLS

A crude bridge connects the mainland with the rocky island of Elevala, one of the three native settlements adjacent to Port Moresby. In the left foreground is a small pier, which looks from the air like a white log jutting out from the shore.

the Samberigi. The only known outlet for the latter is through a watercourse in a deep ravine, impassable except during the dry season. They come to a point intermediate between their valley and the Kikori River villages and trade in this "no man's land" during a fixed period of truce, when the two peoples mutually agree to refrain from acts of violence. Before or after this truce, it is fatal to cross the dead line!

During our stay there was a fitful arrival and departure of canoes, usually with only one individual in each, invariably carrying bow and arrows and baskets made of the leaf sheath of a palm ingeniously folded and pinned, so that it made a convenient receptacle for lumps

of sago, shrimps, or other food. These people all seemed rather sullen and went silently about their business. They did not even cast a glance in our direction. Some were literally caked with mud and filth.

We returned to Kikori, depressed by the sight of Nature's masterpiece, man, as represented by such a primitive people.

Next morning Dr. Jeswiet and Pemberton started on a collecting trip by launch to Aird Hill, where a mission station is located, and Peck and I took off for Everill Junction, the confluence of the Fly and Strickland rivers (see inset map, page 255).

It may be interesting to draw a comparison between our two modes of travel.



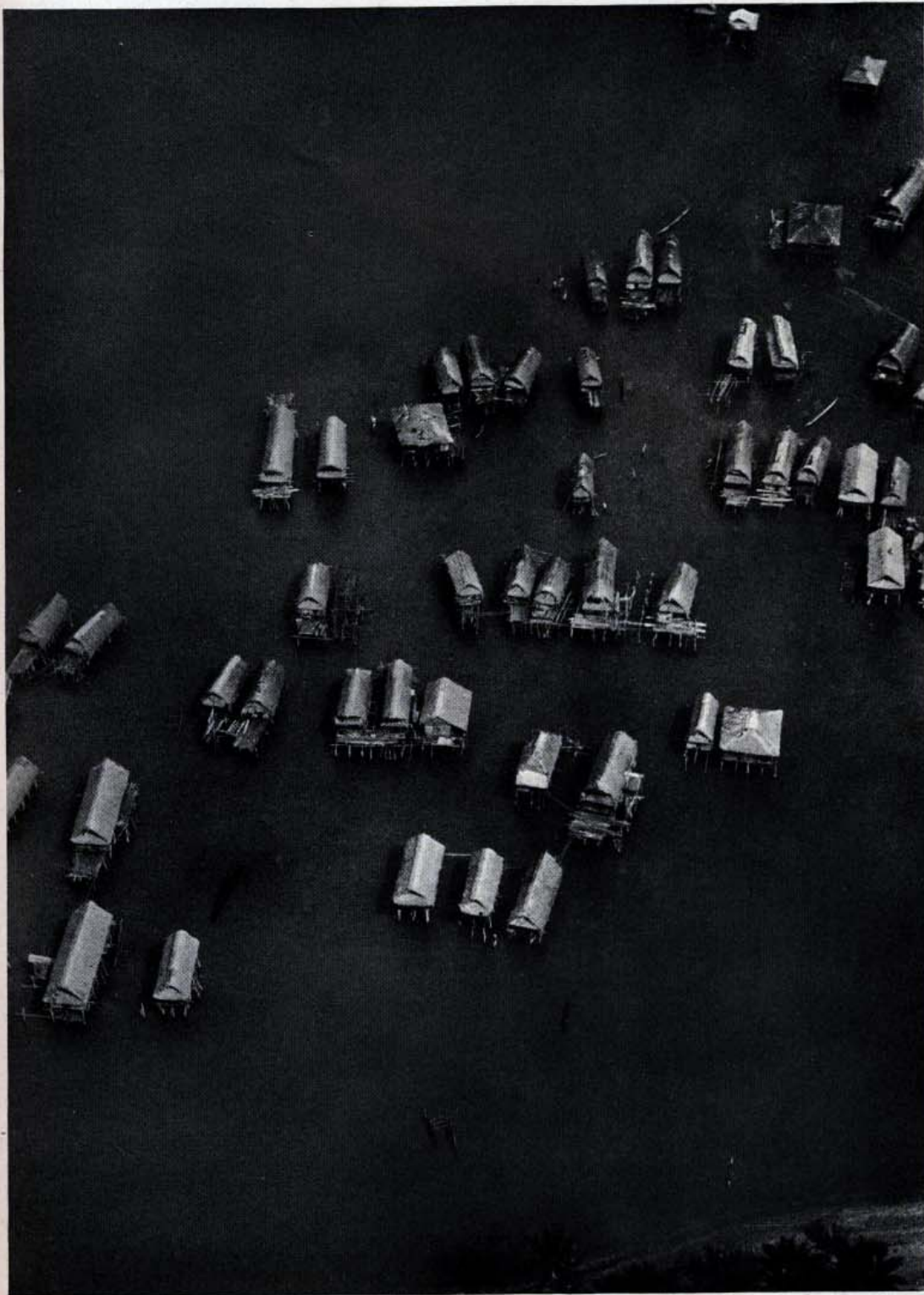


Photograph by Dr. E. W. Brandes

**A DUBU, OR MEN'S COUNCIL HOUSE, ON THE FLY RIVER**

Such enormous structures are used primarily by single men, but husbands also retreat to them from time to time. This dubu is about 350 feet long and 40 feet high. Some dubus measure 600 feet in length. No woman may enter.





Photograph by Dr. E. W. Brandes

FROM THE AIR, NEW GUINEA'S COASTAL VILLAGES RESEMBLE GIANT WATER STRIDERS

The inhabitants of this important village of Hula, near Port Moresby, are among the most intelligent and aggressive natives of Papua. Some Polynesian blood is in evidence here, whereas in most of coastal New Guinea Melanesian stock is predominant.





Photograph by Dr. E. W. Brandes

AN AIR VIEW OF A PALM-FRINGED BEACH BETWEEN YULE ISLAND AND THE  
KIKORI RIVER

Among the coconut trees a village is half hidden, and native fishermen, frightened by the passing plane, are rushing homeward from the surf.

The launch had a 20-mile round trip to negotiate that day, but, owing to strong adverse tides, it was so delayed that darkness was approaching when the party was ready to start back to Kikori. It did not return at all that night. The seaplane returned, after a 700-mile trip to the deep interior, interrupted by three landings and inspection of a proposed camp site en route; then went over the route to Aird Hill, searching for the launch; discovered it, and returned to Kikori, all between 9:39 a. m. and 5:59 p. m.

THE "VANAPA" STARTS WITH CAMP  
SUPPLIES UP THE FLY RIVER

It was on June 27 that the *Vanapa* had left Port Moresby, with our heavy gear, supplies, and most of the personnel, bound for some point near the junction of the Fly and Strickland rivers. Counting slight delays, I had calculated that the journey would require three weeks.

We wished now to make a reconnaissance ahead of the *Vanapa*—that is, to save time by inspection of the banks for

a suitable camp site, and then to come back, find the vessel, and leave instructions with those aboard. So, with full tanks and stores as a precaution against forced landings in this wild country, we took off on July 12 from Kikori.

We flew first to the Turama River, to drop mail at the temporary police camp under construction there. We discovered this camp and flew over it. It is a wild spot and it gave us a pretty good idea of the conditions under which the officers of the Papuan service carry on their hard, hazardous work. Fortunately, the service is not lacking in men who possess the qualities of perseverance, courage, and diplomacy in dealing with the natives under most disheartening conditions.

We proceeded southwest and passed over the mouth of the Bamu. This stream is known for its astonishing tidal bore, so dangerous to small craft. We did not see the bore during our trips across the river, but it was described as a white-crested wall of water 9 feet high, extending from bank to bank.





Photograph by Dr. E. W. Brandes

STALWART SAVAGES OF UTUTI VILLAGE, ON THE KIKORI RIVER

Some of these men were implicated in Patrol Officer Kirby's murder (see text, page 275).

Continuing beyond the Bamu, we flew over a number of villages built on the tidal flats bordering the streams that form a network of inland waterways here. For the most part, these settlements consisted of the typical long house, of immense size and length, and a few huts secreted among the trees back of it.

Dozens of long dugout canoes without outriggers could be seen drawn up on the muddy flats, and a few similar ones scurrying for the shore, propelled by naked paddlers standing erect. The villagers, as active as ants whose nest is kicked by a careless boot, were plainly thrown into panic by the sudden appearance of our plane.

OVER THE ISLAND-STUDDED ESTUARY OF THE FLY RIVER

By 10:45 we had reached the left bank of the Fly River and saw for the first time the vast, island-studded estuary of that famous stream. Although more than 5,000 feet above the sea, we were out of sight of the right bank and could realize the dilemma of those early navigators, who were so confused by its numerous chan-

nels that they did not know if they were viewing one or a number of rivers.

Joseph B. Jukes, chronicler of the voyage of H. M. S. *Fly* in 1842, records that when ten miles offshore the water was muddy and only slightly brackish, so Captain Blackwood decided it must be the mouth of a large river. On this evidence Blackwood is credited with the discovery of this mighty stream.

A missionary, the Rev. S. MacFarlane, was the first to offer proof that it is indeed a river. In 1876, with Luigi Maria d'Albertis, the Italian naturalist, he ascended it in a small steamer as far as Ellangowan Island. To D'Albertis, however, belongs the credit for the first real exploration of the Fly River, when later, in 1876 and in 1877, he penetrated more than 500 miles into the interior in a steam launch. His maps, published in 1880, are a monument to the industry and endurance of this naturalist of the old school.

Aside from the exploration of the Strickland by Captain Everill and the discovery of Lake Murray by Massey Baker's party in 1913, the only recent milestone of importance in exploration of the Fly water-





Photograph by Dr. E. W. Brandes

## BASE CAMP ON THE FLY AND STRICKLAND RIVERS

In the foreground is a twin-cylinder, outboard, motor-powered, double canoe, which could travel at the rate of six or seven miles an hour when loaded with several tons of gear and provisions. A trade ax worth 55 cents bought two such canoes, representing months of labor. Note the wing of the airplane at the upper left.

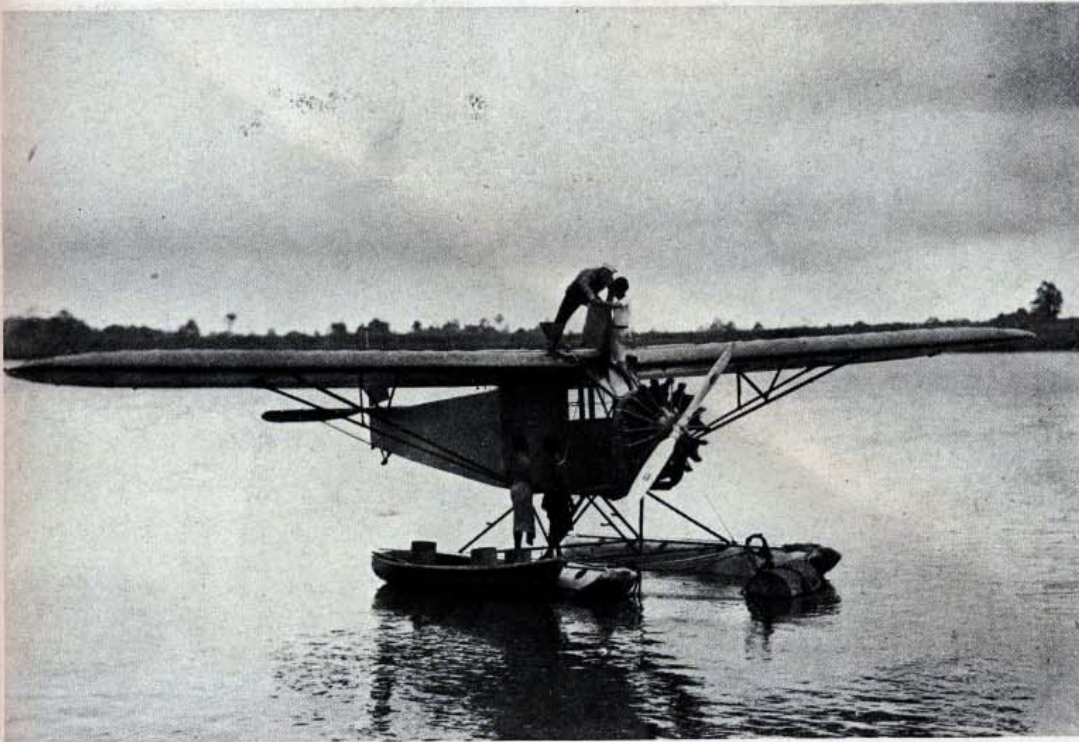


Photograph by Dr. J. Jeswiet

## THE EXPEDITION DINES AL FRESCO

Left to right, as seated: Peck, Champion, Brandes, Pemberton, and Bannon. One of the chief hardships of the Expedition was occasioned by the pest of winged insects.





PILOT PECK "GASSING UP"

Whether gas and oil will actually be waiting at the spot where it is hoped to find them is the constant nightmare of flyers in wild countries. The seaplane used by the Expedition could carry sufficient fuel to make a round-trip flight of 800 miles with safety. It was designed with folding wings and was completely assembled when taken from the steamer at Samarai.



Photographs by Dr. E. W. Brandes

HAULING A CROCODILE UP POLE STEPS TO BASE CAMP

In one day, about this camp, the men shot seven large crocodiles. These reptiles are very aggressive in Papua, and hence are much respected by natives.





Photograph by Dr. E. W. Brandes

CURIOUS, YET TIMID, THEY STUDY THE RECENT ARRIVALS FROM THE SKY

After two hours of coaxing, these natives of the upper Strickland River region came out of the jungle, whence they had fled at the sight of the seaplane hovering over their village.

shed was erected in 1928 by Messrs. Karius and Champion, of the Papuan Government service. They followed the Fly to its headwaters, then crossed the towering Victor Emanuel Range, and descended via the Sepik to the Pacific Ocean. In importance and general interest this extraordinary feat, which occupied more than half a year, ranks with the best modern conquests of unknown territory.

WE "WASH" TWO LARGE ISLANDS OFF  
EXISTING MAPS

We followed the left bank of the great river, flying at 6,000 feet almost due west, passing over 15 or 20 native settlements. In them stood dubu houses of extraordinary size, some at least 500 feet long.

By 11:15 we had left the last of the estuary islands far behind. But the river was still several miles wide, and both banks were thickly wooded for one-half to five miles back. Beyond this ribbon of jungle were poor scrub and grass prairie. From our elevated position we could see in the clear air for a great distance, but the country was perfectly flat as far as the eye could reach.

We began now to see the possibility of checking up on the geographical features of the country, as represented on the recent charts in our possession. Without going out of our way, it seemed an easy matter to correct the slight inaccuracies of the charts and thus perform a service that might be welcomed.

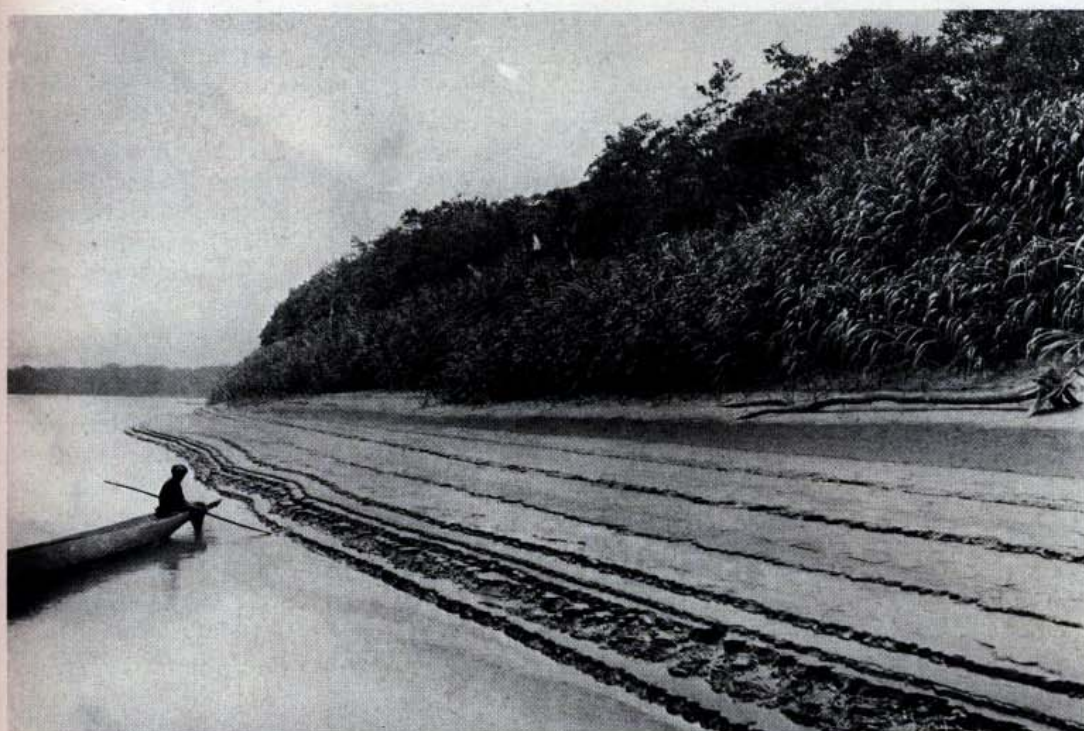
The great Fly River, in common with similar streams, is gradually but continually changing its course. Oxbows are being pinched off, leaving semicircular lagoons. Islands are building up with silt; others are wearing away or becoming one with the mainland, and from the vantage point of our position many of these processes were unfolded with startling clearness.

As a beginning, we washed off the map two large islands which simply no longer exist or never had!

It occurred to me, furthermore, that we were about to see spread before us some 40,000 square miles of territory in western Papua and Dutch New Guinea, only a small proportion of which had been seen previously by civilized men.

From an altitude of nearly three miles,





Photograph by Dr. J. Jeswiet

ALONG THE MUDDY BANKS OF STRICKLAND RIVER WILD SUGAR CANE GROWS  
LUXURIANTLY

In such favored spots as this the Expedition found many of the varieties it desired. Here the species *Saccharum robustum* is shown in bloom.

attained many times, we later beheld on clear days an area equivalent to one-third of the total covered by the Territory of Papua.

THE FIRST AIRPLANE TO REACH THE  
INTERIOR OF PAPUA

No airplane had previously been in the interior of the Territories of Papua and New Guinea, although flying boats had skirted the coast and a land plane had on one occasion made the perilous trip over the mountains of the eastern peninsula. I therefore devoted a part of my time during our numerous flights to photographing and sketch-mapping lakes and other features not on existing charts. These features are shown in their approximate locations on the map on page 255. They are roughly tied in with known and described points, and the most that can be said for our cartographic contributions is that they demonstrated to the authorities in Papua the practicability of surveys with seaplanes.

For the next 100 miles there was no

sign of habitation on the Fly, although we occasionally saw smoke 12 to 15 miles back from the river, sure sign of the presence of man in this humid country, in which spontaneous fires never occur.

At noon the *Vanapa* was sighted 8 or 10 miles ahead, still some 60 miles from her destination. We landed beside her and taxied into the bank. Two wild varieties of sugar cane rewarded my efforts here while waiting for a small boat from the ketch.

YOUNG LADIES FROM AMERICA SUDDENLY  
APPEAR

Once aboard the *Vanapa*, we were relieved to find everyone well and were somewhat astonished to discover among the passengers two young ladies in shorts, who spoke with an undeniable American accent (see, also, page 267).

They proved to be from Cleveland, an artist and her companion on a sketching trip around the world. Far indeed they were from the tourist trail. They had wheedled our captain into taking them





Photograph by Dr. J. Jeswiet

A CIVILIZED NATIVE SOLDIER DETAINED TO GUARD THE  
EXPEDITION'S BASE CAMP

In his hands he is holding panicles of a tall grass, *Imperata arundinacea*, resembling sugar cane.

along when he had stopped at Daru. It is certain that they will never be farther from home than on the Fly River. The captain had pitched a wall tent on the flat roof of the aft cabin to accommodate the strangers, and, surrounded by all the comforts of home, they surveyed the jungles primeval.

We had tea and biscuits in good Australian fashion. Then we took off, with Mr. Ivan Champion, to fly to a place we had now agreed upon as a rendezvous—a camp previously used by the Government patrol in pursuit of raiders who had massacred the inhabitants of Weridai, a village

on the lower Fly. It was our good fortune to find this site habitable. We flew up the Strickland a way, got a distant view of Lake Murray, then returned to the *Vanapa*.

All plans for occupation of the base camp seemed to be progressing satisfactorily, so we returned to Kikori. Next day, Friday, the 13th of July, with Jeswiet and Pemberton aboard, we embarked on our 13th flight in New Guinea. The long trip back to Port Moresby in a half gale was uneventful; but once, in experimenting on the time capacity of the left-wing tank, it went dry. We nosed down from an elevation of 2,500 feet to about 100 feet above the angry sea, far out in the Gulf of Papua, before the motor took hold again! Yet, even after this experience with all the forces of the calendar against us, we still felt that the seaplane was our safest vehicle for exploring New Guinea.

After preparing our sugar cane for shipment, and storing it in the Port Moresby ice plant pending arrival of an oversea steamer, the entire scientific party took off once more for the base camp, to start in earnest our search for sugar cane in the untamed regions where it and almost everything else were reputed to be very wild.

NATIVES VISIT BASE CAMP ON ONLY TWO  
OCCASIONS

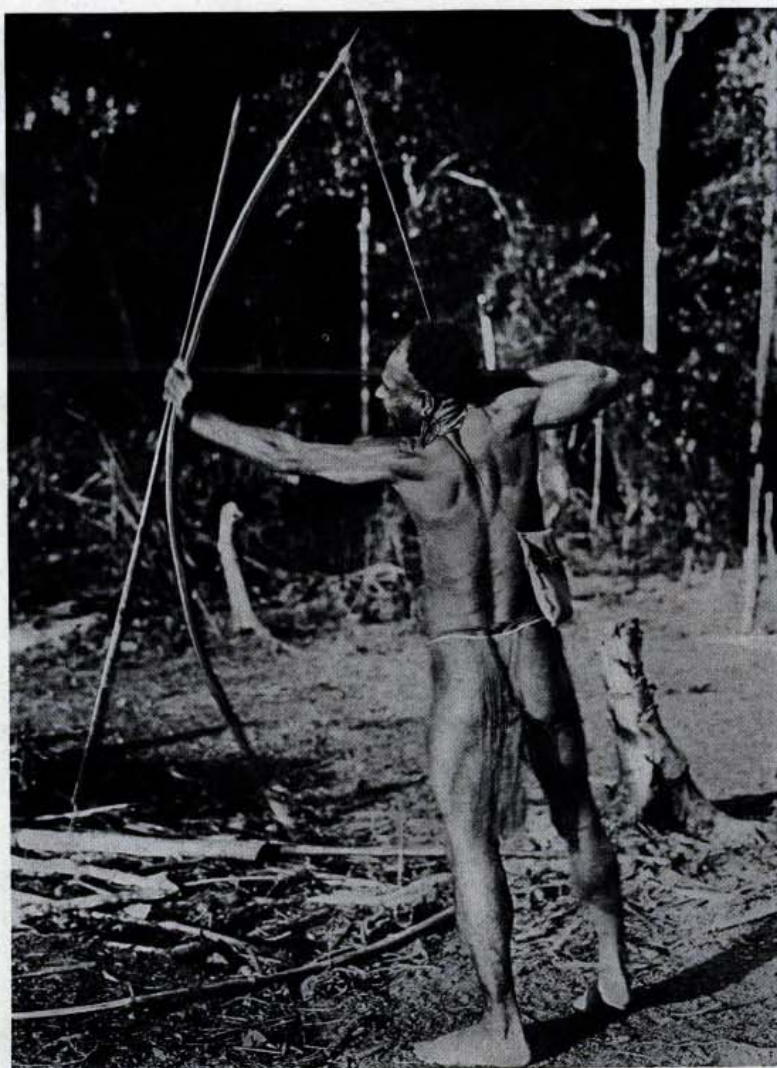
We got to our Fly River camp on July 21 and found everything shipshape. Daily routine was established. A strict military



régime was maintained, with sentries pacing their beats at night. But nothing happened to indicate hostile intentions on the part of the natives. In fact, we were visited by them only twice. Once a group came in a canoe, with an 18-foot python twitching its tail despite fearful wounds. They doubtless brought it as a propitiatory offering to grace our table, for they enjoy snake meat.

The second visit was opportune for us. We had just shot a crocodile in front of camp, and no one was yet familiar enough with the necessary handholds to maneuver a supposedly dead reptile of this size up the high, slippery bank. But these wild gentlemen seized it with apparent unconcern, and tugged and hauled its huge bulk to the place designated. The tenacious hold on life of these creatures is well known, so Peck was suspicious enough to put two more bullets into its head. Despite this, it crawled about during the night, but without injuring any one.

The rains had now ceased and the camp had become almost dry, except for water in the deep, gaping cracks in the sun-dried earth. This furnished a breeding place for mosquitoes. Among them Pemberton found three species of *Anopheles*, the malarial mosquito. A large gray *Culex* was prevalent in such numbers that we were unable to sit down to lunch, but paraded in a circle about the table, reaching for a plate of beans in the manner of those patronizing well-conducted buffet luncheons.



Photograph by Dr. J. Jeswiet

FOR RAPID FIRE, HE HOLDS RESERVE ARROWS IN HIS LEFT HAND

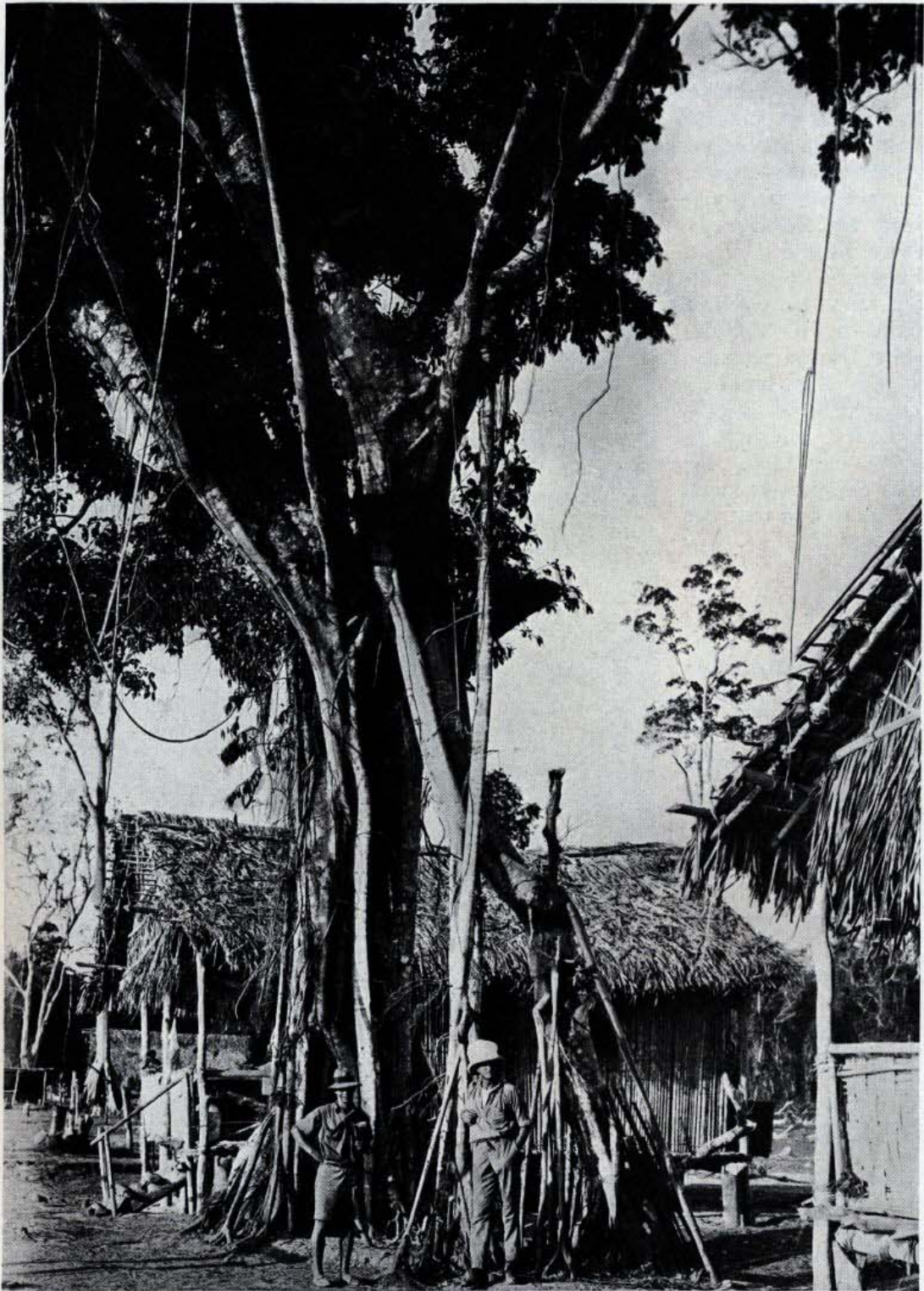
Made without feathers, these arrows take a spiral motion in flight (see, also, illustration, page 295). This warrior is from a village on the Strickland River.

The order was "under the nets at sundown" or take the consequences.

#### JUNGLE FOLK FLEE AT SIGHT OF PLANE

On July 22 we took off for a flight up the Strickland to seek Champion, who had set out four or five days previously with a police detail in a double canoe propelled with one of our twin-cylinder outboard motors. We were concerned for his safety, so we scanned the river en route to Lake Murray, but without locating his party. Later we learned that they were in a narrow channel between some islands when we passed.





Photograph by Dr. J. Jeswiet

## A FICUS TREE AT THE EXPEDITION'S BASE CAMP

This New Guinea cousin of the banyan and peepul trees, all members of the fig family, is usually the main pillar supporting the houses of pygmy tree-dwellers (see, also, pages 289 and 309). Note the size of the aerial roots, which are sometimes utilized by the pygmies as supplementary supports for their houses.





Photograph by Dr. E. W. Brandes

LIKE HUGE BIRDHOUSES ON POLES ARE THESE PYGMY DWELLINGS

Usually the central support of such a structure is the trunk of a ficus tree (see opposite page), the top of which has been hacked off with stone axes (see page 298). On the halfway platform two small boys are standing. The dwellers are most adept in rapidly ascending or descending by means of a notched pole when danger threatens.





Photograph by R. K. Peck

## THE AUTHOR AND A DIMINUTIVE BLACK FROM KATINGOR

The relative heights of the American and the Papuan are not clearly indicated in this photograph; the former was standing on much lower ground than the native, as indicated by the relative position of the knees.

We saw a village with a large community house, on a lake just southeast of Lake Murray, and descended low to inspect it. Its people fled for their lives into the bush.

Continuing, we circled Lake Murray, exploring every bay and estuary for signs of Champion, but without success.

This lake is 40 miles long from north to south, with dozens of narrow estuaries terminating in small streams extending, like the tentacles of an octopus, in all directions. It is a spot of surpassing beauty, viewed from the air, and is the home of a lotus with magnificent pink blooms, about 10 to 14 inches in diameter, and other gorgeous water plants. Endless flocks of geese, ducks, and herons rose from the water beneath us as we passed.

Peck tried to shoot some ducks and we had an exciting few minutes maneuvering to get "on the tail" of the flock.

We saw six villages during our long trip around the lake and had an amusing experience with some natives in two long

canoes near an island. Wishing to inspect them at close range, we volplaned down toward them from a great height. But the view we got was only of their feet, as the whole crew jumped overboard!

It goes without saying that we were considered supernatural. All natives of this island with whom white people have been able to exchange ideas of an abstract nature have disclosed strong beliefs in spirits, malignant as well as beneficent. Most of them conceive of ghosts of departed friends and enemies, who must be placated in various ways to avert dire consequences.

## A VISIT TO A DESERTED DUBU

Of course, the civilized coastal native becomes reconciled to the airplane very quickly. They now accept the powers of the white man with indifference. After seeing boats that go without paddles or sails, paper that talks, phonographs, etc., they are resigned to the conquest of the air,





Photograph by R. K. Peck

THE INTERIOR OF A PYGMY TREE-HOUSE BUILT 60 FEET ABOVE THE GROUND

To get this picture, Peck, hampered by his camera, had to do some hard climbing. Against the wall at the left are digging sticks, bows, and arrows. Between the two men is a sunken hearth. At the right is a "whatnot" containing arrows, headdresses, and other personal belongings.

and with a shrug put it down as fresh evidence that "white-man fashion" is different from "New Guinea-boy fashion."

We flew back to the village first seen and descended on the smooth water in front of it. A close-up view disclosed the typical big dubu, or long house, with yawning entrance to a dark interior. Grinning human skulls were arranged on racks just within, presumably a defiant challenge to strangers and a warning of what they might expect if they sought to enter.

This dubu faced the lake and stood in a thick grove of coconuts and other trees. Several canoes were on the shore tethered with rattan. A narrow path led through a heavy growth of tall *Eulalia* grass, up the steep bank and across a level space to the entrance. No signs remained of the fleeing natives we had observed when we passed over, but we had an uneasy feeling that we were being observed. Not know-

ing the character of the reception we might receive, we faced the seaplane into the lake and paddled shoreward tail first.

Upon grounding in the mud, we leaped into the water and walked across the shingle to the high bank in full view of the dubu, shouting in a loud but (as we fondly hoped) friendly tone all the while. There was no answer. Was the silence ominous or did it merely mean that the fierce savages (as they had been described to us) were now far away?

We carried no rifles in our hands. To the primitive man a rifle is a club, and he is thoroughly cognizant of the uses of a club. A pistol in its holster is to him purely ornamental. He has no conception of the sudden death lurking in such a small, innocent-looking package. The principal defense upon which we now relied was a wide smile, and as we advanced we did our best to register pleasure.

Still nothing happened. Did that slight





HIS HOME IS AN ISLAND IN LAKE MURRAY (SEE ILLUSTRATION, PAGE 308)

To protect his wrist against his bow string, he wears a woven rattan guard (see, also, page 293) on the left, or bow, arm. Into this he has stuck a plume of cassowary tail feathers. Around the upper arm he wears armlets of bush pigs' tusks, and his apron is a conch shell.



Photographs by R. K. Peck

A KATINGOR PYGMY WEARS HIS FIRE-MAKING APPARATUS AS A GIRDLE (SEE TEXT, PAGE 314)

In his nose is the customary bamboo plug. His coronet is made of the seeds of Job's-tears and his necklace is composed of pigs' teeth. Slung across his back is a palm-leaf bag, in which he carries a supply of tobacco.

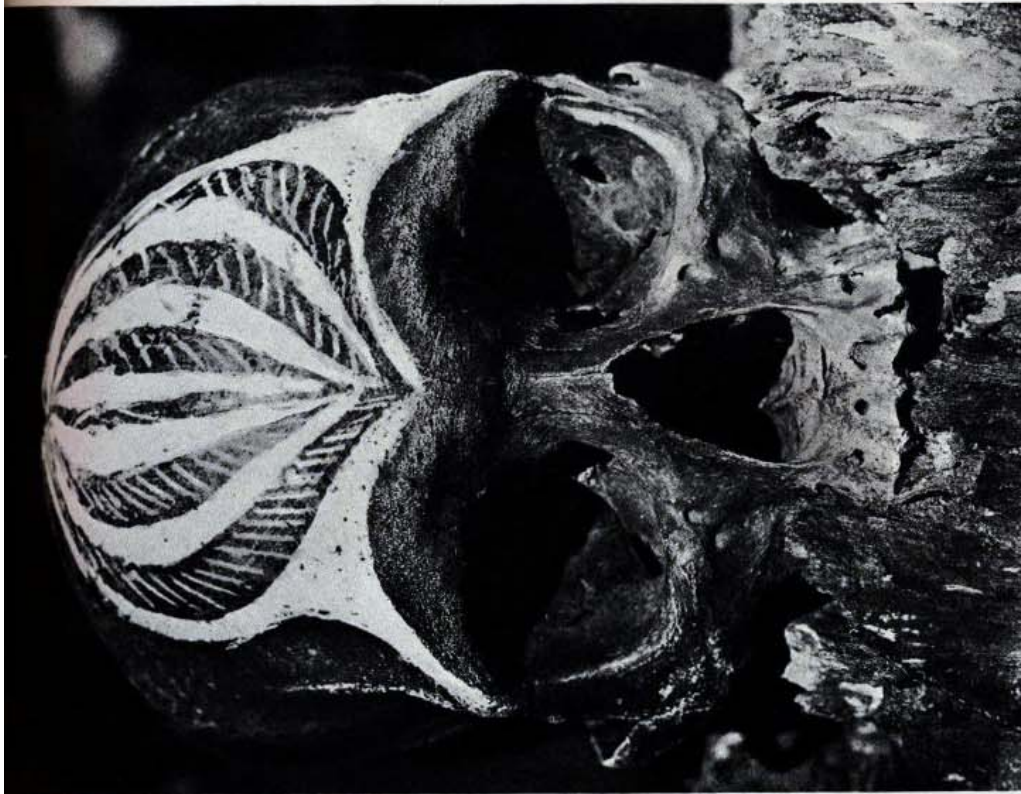




Photograph by R. K. Peck

#### A PYGMY TAKES A SMOKE

He wraps his tobacco in a bit of banana leaf and inserts it in this mammoth cigarette holder. He wears the rattan wrist protector (see, also, opposite page). Through the septum of the nose is thrust a bamboo plug, and through the skin of one nostril protrude the claws of a flying fox. From his ears hang quills of the cassowary and the plumage of that giant bird forms his headdress. His necklace is made of pigs' teeth.



Photograph by Dr. J. Jeswiet

#### A PAINTED TROPHY OF A HEAD HUNT

Skulls are much used in the arts and rites of New Guinea tribes. Not only the bones of enemies but also those of deceased relatives are employed for many purposes. Among some tribes a widow wears her departed husband's thigh bones as a collar around the neck or as "panniers" about the waist. This skull is mounted on a post in a pathway near the dubu at Miwa (see page 294).





Photograph by Dr. J. Jeswiet

#### SKULLS ON POLES GRIN FROM JUNGLE NOOKS

In this cannibal country such grim trophies confront one suddenly from the least-expected places. This specimen (see, also, page 293) is mounted on a post back of a crude stile leading to a village garden.

movement of grass on our right mean a lurking warrior? It seemed wise to wait a bit.

#### A PAINTED SAVAGE LEAPS INTO THE OPEN

We continued to shout and at intervals to advance step by step. And we got slight comfort in the thought that we were covered by those remaining in the plane and would be quickly revenged if speared.

The suspense was wearing. Could that movement in the grass be merely the wind, after all? No, sir! Positively, it

was not! For now a painted individual suddenly leaped up, not 15 paces away, and emitted a startling string of gutturals, accompanied by violent gestures.

He was bearded, clothed only with a shell, and was emotionally aroused. A series of advances and retreats now ensued, as I attempted to make contact with him to present a piece of turkey-red calico. Peck meanwhile sought to make a deathless film record of our first meeting with the renowned head-hunters.

Soon this first aborigine was joined by



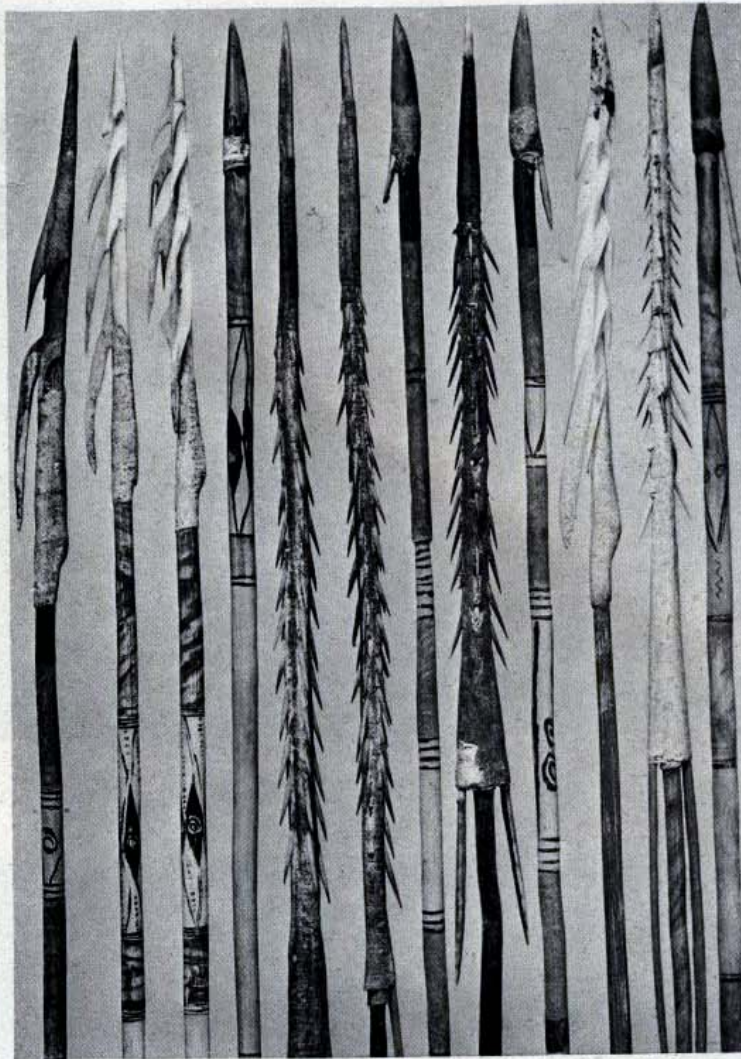
six others. They were all in a great state of nervous excitement. They would not permit us to approach near to them, but kept up a continuous jabber, accompanied by long-drawn-out whistles, exactly as we do when too overcome by wonder to speak. Thirty or forty minutes elapsed after the time of landing before I was able to hand the enticing flame-colored cloth to a bearded patriarch and give him a reassuring pat on the shoulder. From this he cringed and dodged away.

Pemberton now found a short length of chewed sugar cane on the beach and made signs that we wanted food. Immediately there was a dash to the rear by most of the score of savages now assembled, and soon they returned with armfuls of cane. A brisk bartering took place and soon we had good specimens of six varieties of cane.

This business calmed the crowd, which now numbered 30 or 40; but most of them kept a safe distance away. Several venturesome spirits, with the brave man who first appeared, grew bold enough now to touch our khaki clothing. They whistled as before and exchanged confidences in amazed tones. I was startled when one cannibal calipered my leg in a professional manner and otherwise conducted himself like a judge in a stock show.

#### STUFFED HUMAN HEADS OFFERED IN TRADE

Now the leading spirits among them began to bring out trophies. These included their most prized possessions — *stuffed*



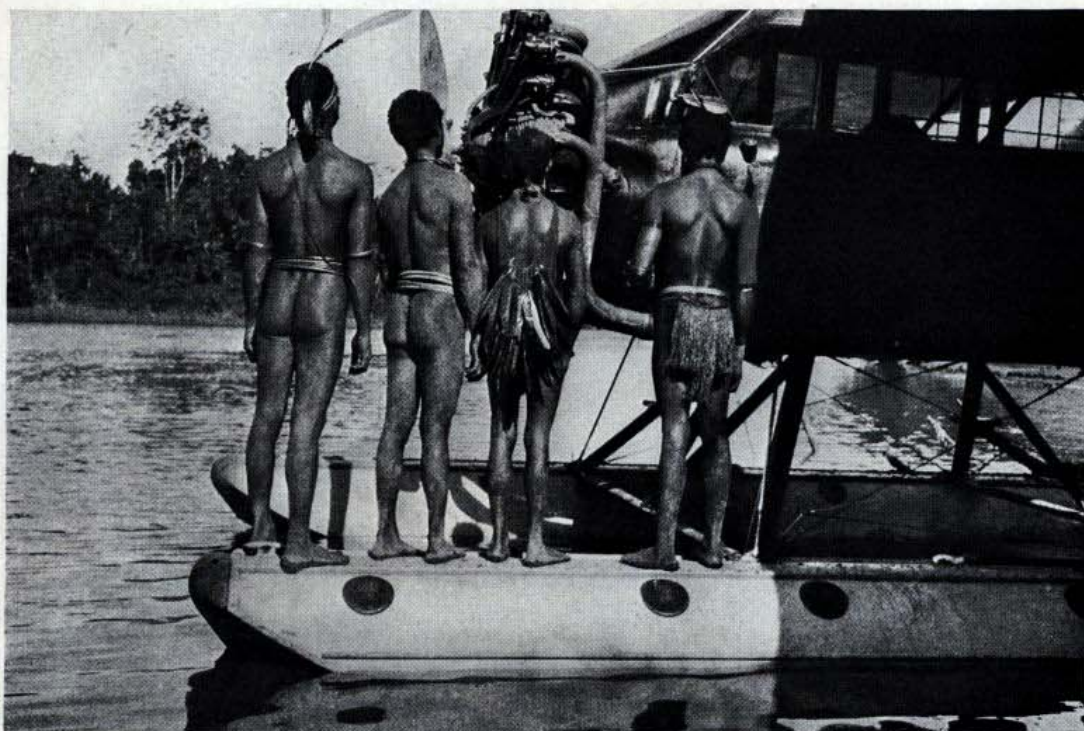
Photograph by James F. Brewer

#### AN ASSORTMENT OF ARROWS COLLECTED IN THE MIDDLE FLY RIVER DISTRICT

These weapons are tipped with carved cassowary breastbones and cassowary claws and are barbed with spines from the dorsal fins of fish or porcupine quills. The shafts, made of stems of *Eulalia* and wild sugar cane, are not feathered; consequently the flight of such arrows is winding and confusing to the human target, but true to the mark (see, also, text, page 298).

*human heads!* They indicated a desire to exchange them for the trinkets we displayed. Fishhooks, safety-razor blades, empty cigarette tins, and colorful cloth captivated them, and they seemed to consider a hinged flat tin the equal of any of their possessions. We had been cautioned against wholesale traffic in heads, as it might stimulate the local business of taking them. It was interesting to note, however, that for a mere trifle, in our estimation, a warrior would part with these





Photograph by R. K. Peck

WHEN THE PLANE HALTED AT THE JUNCTION OF THE FLY AND OK-TEDI, NEGRITOS  
VENTURED ABOARD

mute but ghastly evidences of his prowess. We did not see them cut off any heads or dress them, but we understood the pantomime with which they endeavored to convey to us the method.

One grinning savage complacently related with obvious relish how he had made away with the man whose remains he now used realistically to punctuate his remarks. It was an ambush, evidently. We could piece together the story readily enough on perceiving that the blow was struck behind. Most of the skulls testify to this.

After the arms of a victim have been cut off, the body is partly severed near the middle and the skin worked up over the head, like pulling off a sock. The vertebrae of the neck are next dislocated by a violent side jerk and the head cut off. The brains are removed through holes in the skull, and all adhering flesh that can be conveniently scraped off is also removed. The armholes are darned with thongs and the drying and curing process is accomplished by smoking over a fire.

The stuffing material is coconut husk fiber and clay, a large lump of which protrudes from the open mouth, making the

victim look as if he had choked on a baseball (see illustration, page 330).

By stuffing it with mud a head is enormously distended longitudinally, until it resembles a horse more than a human being. The skin of the nose is cut in strips and braided, being fastened again to the upper lip, where, reinforced with a loop of rattan, it serves as a convenient handle for carrying the trophy. The finished product on the constricted pedicel-like torso is now ready for display or use in the childish diversions of these primitive folk.

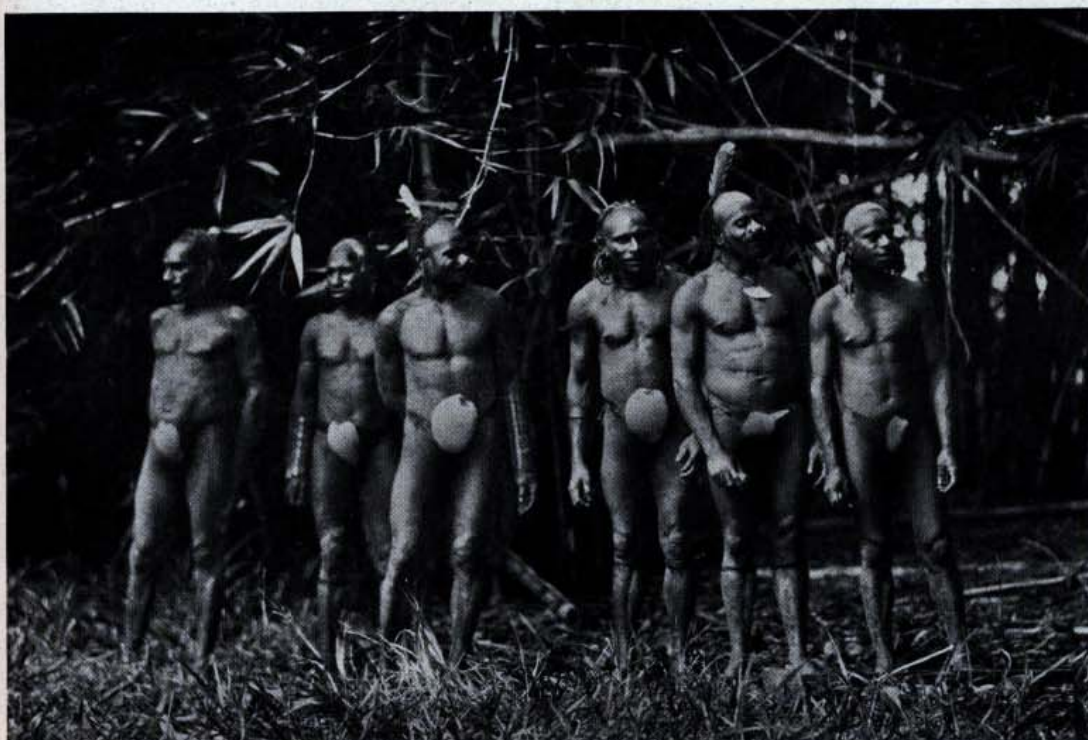
Certain parts, our informant continued, are quite delectable to the palate.

As to the continuance of cannibalism: Many areas are not yet under Government influence, and where cannibalism has existed for thousands of years it still persists. The Papuan follows the precept and example of his forbears. Head-hunting is not an everyday affair, yet many of the people of the interior probably meet their fate in this manner. Much time may intervene between head-hunting raids on a wholesale scale, but the native seems to give a good deal of thought to cannibalism at all times, and it is noteworthy that the





THE HEADDRESS OF A LAKE MURRAY NATIVE, MADE FROM BIRD-OF-PARADISE FEATHERS

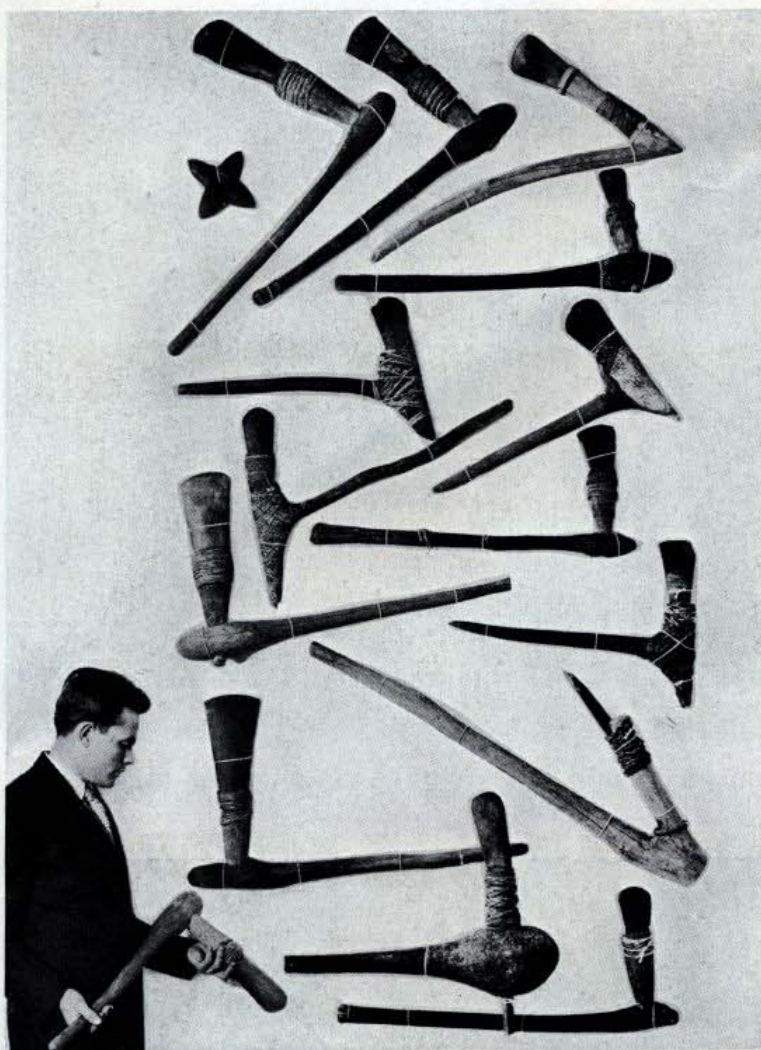


Photographs by Dr. E. W. Brandes

PERFECT PHYSIQUES DISTINGUISH THESE NATIVES OF THE FLY RIVER PLAIN

It took much persuasion to keep the head-hunters in line and quiet long enough to be photographed. Although they live 300 river miles inland from the ocean, their large white aprons are made of sea shells.





Photograph by James F. Brewer

#### THESE STONE AXES HAVE SHAPED MANY A NEW GUINEA CANOE

Among the trophies brought to the Smithsonian Institution in Washington, D. C., by the author is this unique collection of weapons and implements. At the upper left is the head of a star club, used to give the final fatal blow to a victim. It comes from the Strickland River region. The axes have blades of smooth green stone of razor-edge sharpness. They are attached to the handles in such a way as to enable the user to change the angle of his blade at will by merely shifting the position of a wedge.

middle and upper Fly natives are never seen without their arms.

#### COLLECTION OF BOWS AND ARROWS BROUGHT TO SMITHSONIAN

We obtained many weapons here for the Smithsonian Institution at Washington. The bows are of split bamboo, quite unlike the black palm bows of the Delta. They are about three inches wide and seven to eight feet long and are bent with

the hollow side out. The bowstring is a flexible strip of split bamboo. Such a bow in the hands of a well-built savage will drive an arrow more than 200 yards.

The arrows used by these folk are masterpieces of fiendish creation. Those used for fighting are tipped with the long, straight claw from a cassowary toe, or bones from the wallaby, cassowary, or pig. Most of them have recurved barbs of bone fixed to the shaft with fiber and gum, so that the arrow cannot be withdrawn (see illustration, page 295).

The tips of some arrows are eccentric, and it follows that when they hit an obstruction they are deflected and cannot be pushed through. The result is that the filthy point, which may have been steeped in decaying meat, remains inside and sets up septic poisoning; so, if the victim does not bleed to death shortly, he is doomed anyway.

The long points made of cassowary breastbone are carved in a series of jagged, recurved barbs two to four inches long.

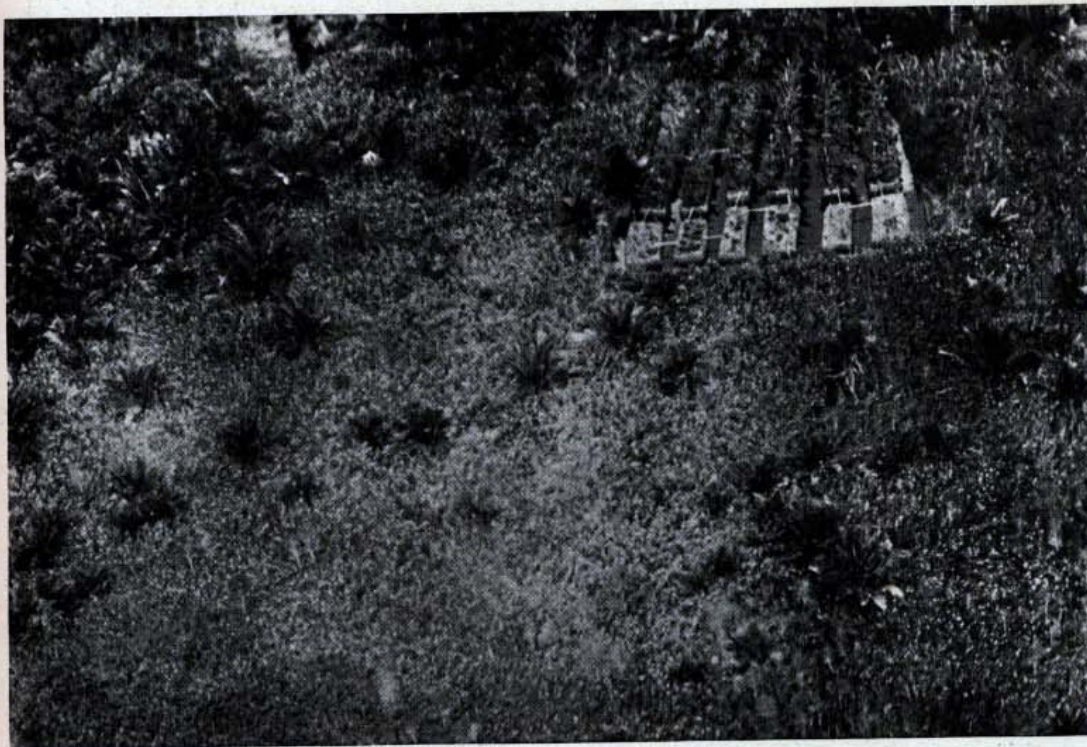
The most diabolical arrow of all is provided with bone tip and a hundred or so straight barbs, made of porcupine quills or spines from the dorsal fin of fish, extending in bristling array for about 15 inches back from the tip. They are set in a sort of cement that may be hardened latex of some tree. Hunting arrows are pointed with bamboo bayonets or slender, beautifully turned pencils of black palm





THE SEAPLANE ALIGHTS IN THE FLY RIVER FOR MORE FUEL

After a record flight, the aviators, with gasoline tanks practically empty, were contemplating a forced landing when, by happy chance, they sighted the Expedition's supply ship *Elevala*.

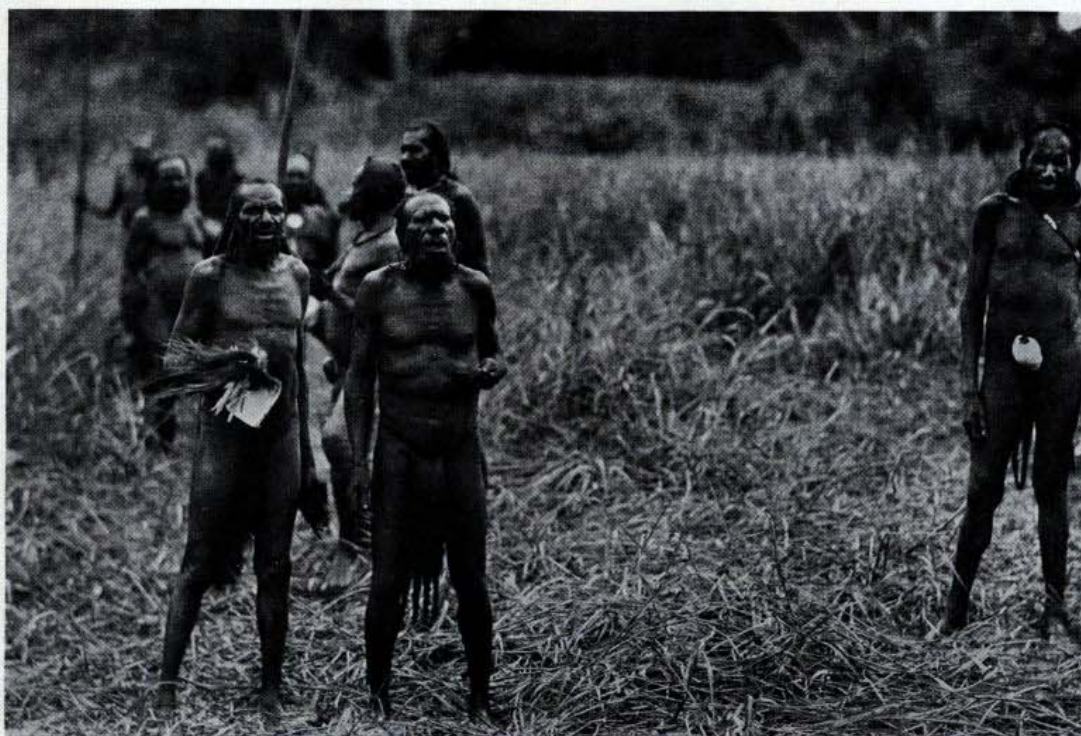


Photographs by Dr. E. W. Brandes

A FLY-RIVER GARDEN PHOTOGRAPHED FROM AN AIRPLANE DURING A TROPICAL RAIN

At the upper right are rows of banana plants growing on ridges separated by drainage ditches six feet deep. The white rectangles are parts of the ridges which have not yet been planted or upon which are growing immature banana plants. The drainage ditches are so deep that the natives place logs (the white sticks) from ridge to ridge to enable them to cross.





Photograph by Dr. E. W. Brandes

#### REGISTERING CONSTERNATION AND AMAZEMENT

The expressions on the faces of these Lake Murray savages are due to the fact that, for the first time, they have just seen an airplane descend and a white man climb out of it. The man at the left holds a bird-of-paradise plume.

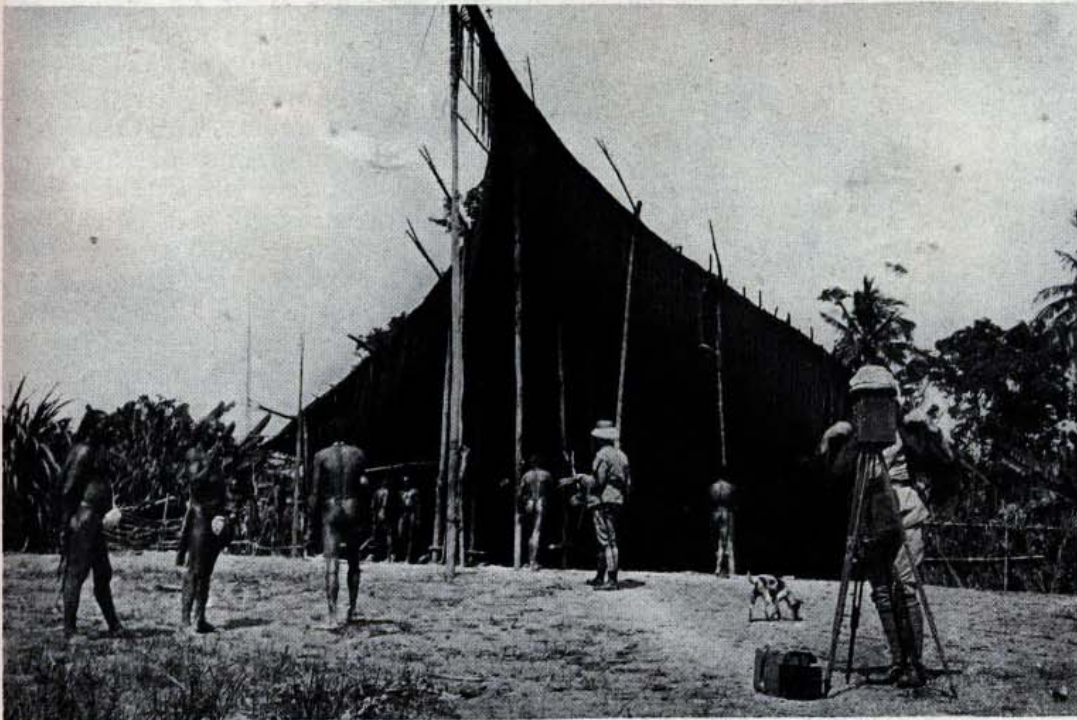


Photograph by R. K. Peck

#### WHENEVER THE PLANE ALIGHTED, NATIVES HURRIED TO SEE IT OR FLED FROM IT

In dugouts these Lake Murray savages swarmed up to see the "big hawk." When women and children arrived with the warriors, the members of the Expedition felt relatively free from attack; when there were prospects of hostilities, the men kept their families in the background.





THE DUBU HOUSE IS TABU AGAINST ALL WOMEN

The odd structure, for men only, stands in a village on a small body of water near Lake Murray. The town had never before been visited by whites, and throughout the Americans' stay the natives were in a state of nervous excitement.



Photographs by R. K. Peck

ARMED CANNIBALS, VISIBLY EXCITED, GET THEIR FIRST VIEW OF WHITE MEN

The spearmen are from an island village near the east shore of Lake Murray. In the background is a dubu, or council house (see above, also, text, page 290). At the right is the wing tip of the author's plane.





Photograph by R. K. Peck

#### A LAME NATIVE EXAMINES THE AËRIAL VISITOR

He bears many frightful scars, apparently from cuts in battle. The aged, the lame, and the halt were seldom seen in New Guinea; apparently they are unable to survive the continual warfare and raiding for heads.

and other wood. All arrows are shafted with straight jointed stems of tall grasses, including *Miscanthus sinense* and *Saccharum spontaneum*, a wild sugar cane.

Axes and adzes for cutting down trees and making canoes resemble in shape our steel axes and are generally made of the same material as the clubs, a smooth, dark-green stone (see page 298). A dirk made from the femur of the cassowary is common, the double-knobbed end, where it is articulated with the pelvic bone, making a convenient handle.

These natives gave what we considered evidence that they had never seen white

men before. Their fright and amazement and their willingness to part with possessions of value for little or nothing in return were in great contrast with the attitude of the inhabitants of villages on Lake Murray proper, who quickly became insolent and "cheeky."

We later visited seven or eight other villages on Lake Murray and on the other lakes and rivers in the vicinity. Lake Murray has been visited a half dozen times since it was discovered, in 1913, mostly by Government parties, and we found the natives there to be so sophisticated as to demand "zingy-zingies" in trade for stalks of sugar cane or their other trifles. With the help of their pantomime, we interpreted "zingy-zingy" to mean a trade ax.

#### WOMEN OF THE INTERIOR SEEN FOR FIRST TIME

We were much amused by the grave antics of one Lake Murray man, who sought to express his desire for a mouth organ. He blew violently into a discarded cartridge box, with its neat double row of small square compartments, and sawed it back and forth between his lips.

These people were extremely curious to examine the interior of our plane. They crowded onto the pontoons in such numbers that I had to push them violently into the lake several times. A man afflicted with a repulsive skin

disease concluded I was playing a game, and upon my pushing him back into the water with the admonition, "Get down, get down," he would repeat, "Gedahn, gedahn," and thereupon get up!

At this place we saw women for the first time in the lake region. Heretofore women and children had been kept back in the bush during our visits, a cause for apprehension, it has been related, as the women are always bundled off when violence is expected.

The women we now saw were scrawny, forlorn creatures, not at all like their men, who are in general stalwart and well-



muscled, some being really fine physical specimens. Moreover, the men of this region carry themselves like masters of the earth. They have a confident, self-assertive air that was strongly impressed upon us, after having seen the poor slinking, cringing creatures in some other areas. They frequently have aquiline, high-bridged noses, thin lips, and a decidedly Semitic cast of countenance.

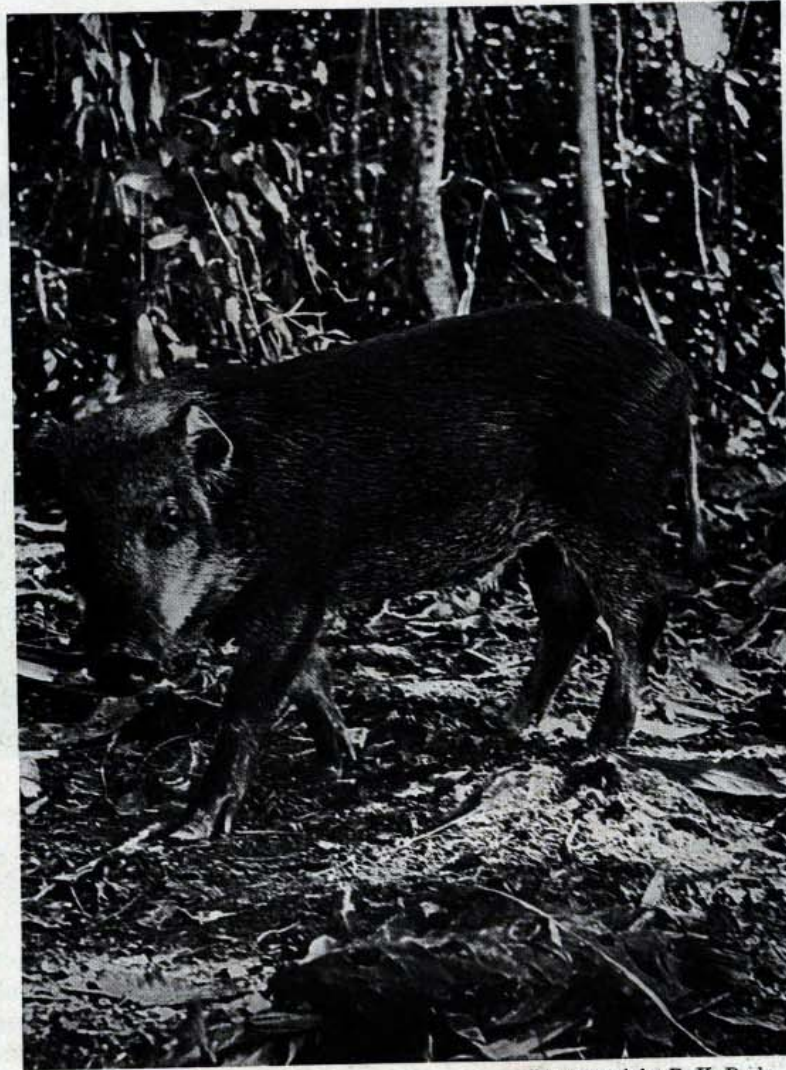
The women came close and the men, not relinquishing their more advantageous positions, crowded still closer and jostled us.

And here we met the genuine essence of Papua! The odor of these people approached the variety encountered in the cat-house of the zoo in winter. One of the women was nursing a small pig. This is a common practice, as the hunter has no recourse but to turn piglets over to his better half to suckle when he kills the mother in the bush.

#### EXPEDITION MEMBERS ARE INVITED TO A "SAMBI"

At one village the men were very insistent that we join in a *sambi*, which we took to be a dance of some sort, and in a suggestive manner indicated that there would be provided dusky partners. Although sorely tempted to make observations on the more intimate social customs of these strange beings, we declined, as it is generally assumed that these rites often have for their purpose the betrayal of strangers, natives of course, who are enticed by seductive promises.

At the word *sambi*, all of the men burst



Photograph by R. K. Peck

#### THE VORACIOUS PAPUAN BUSH PIG

This wary animal, though now numerous, is not indigenous to New Guinea; it was probably introduced centuries ago by those roving mariners, the Polynesians.

into a chant with not unmusical voices. There was no melody and no harmonious chords made up of notes of different pitch, but simply a long-drawn-out "O-o-o-oh" in unison, like a complete symphony orchestra tuning up following the sounding of a keynote.

During this performance the strong jaws and even white teeth of many individuals were much in evidence. Betel nut is chewed here, as in most other parts of New Guinea, but it either does not result in discoloration of the teeth to the extent noticeable elsewhere, or there are many total abstainers.





Photograph by R. K. Peck

## LAKE MURRAY NATIVES FLOCK ABOUT THE PLANE TO BARTER

The man in the foreground, wearing a woven cap, persisted in climbing upon a pontoon. Again and again the Americans pushed him off, but he took it good-naturedly and seemed to think it a game (see text, page 302).

Our interesting first visit with the head-hunters was terminated by approaching darkness, and we gathered our bundles of sugar cane, ethnological and botanical specimens, and cameras and stowed them in the plane. As we made these preparations and untethered the winged steed, there was a prompt movement backward on the part of the natives, and a frank expression of mistrust again appeared in their faces. Peck "gave her the gun" and, as the roar of our 425-horsepower motor split the tropical air, our cannibal friends rushed up the bank and took headlong flight into the bush. A mere handful remained in sight as we flew away.

Study of the natural history of New Guinea is a job for specialists, and the field is a fertile one. Primarily, of course, we came for cane; yet, important as that quest was, it was only natural that the strange tribes we bartered with were even more interesting than the plant life we found.

The next area we visited forms a quite distinct entity geographically, with sharp

differences in its flora and other natural features. Its inhabitants comprise a group well defined culturally and racially quite unrelated to those previously met. I refer now to the region of the upper Fly River and its tributaries, the Ok-Tedi, Palmer, and others.

## A VISIT TO REMNANTS OF A VANISHING RACE

Here the people are Negritos, one of the remnants of a vanishing race. They must be of great antiquity, for they survive in isolated racial islands in New Guinea, Africa, the Philippine Islands, and a few other places.

These diminutive, likable people must be regarded with compassion. With the advance of civilization and the gradual surrender of their territory to more aggressive and enterprising races, they will assuredly perish, for they are physically and mentally unfit to compete in any modern economic order of society. Their free ways of life differ so from plantation routine that it is hard to see how they can





Photograph by Dr. E. W. Brandes

FROM HUGE LOGS THE LAKE MURRAY SAVAGES HEW AND BURN OUT THEIR LONG, NARROW CANOES

fit into any future activities, even in an agricultural or pastoral country. They may hybridize with other races; indeed, they have to some extent in this region; but their identity as a race will be lost unless a preserve is staked out for them in which to carry on essentially as they are now.

We left camp on July 24 to collect cane in the pygmies' land. Peck, Champion, and I formed the party.

Following the Fly in a northwesterly direction, we saw scores of lagoons and lakes bordering the river for the first 20 miles above Everill Junction. From an altitude of 7,000 feet, we saw a vast plain broken by Lake Murray and other lakes to the east and numerous sizable lakes to the northwest, which are not shown on any published map. Lake Murray, 40 miles long, was the largest lake then in our range of vision (see, also, text, page 290).

#### AMONG THE PYGMIES WHO DWELL IN TREE-TOP HOUSES

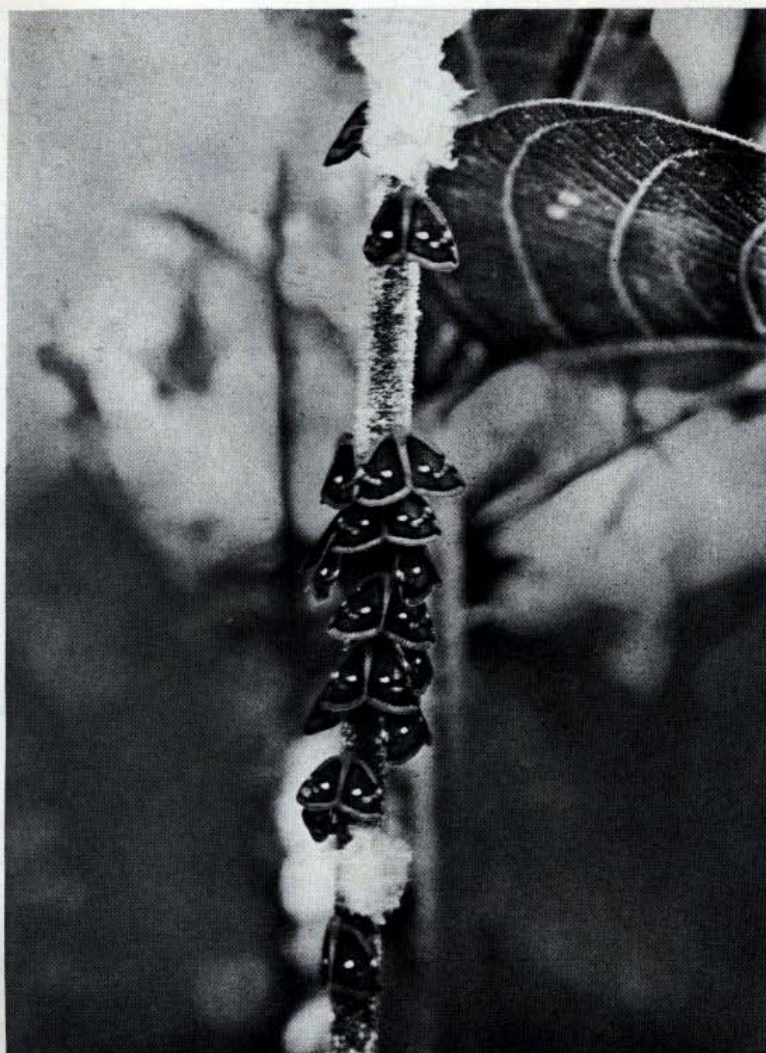
About 100 miles by river above Everill Junction the country becomes rolling and heavily timbered as far as the eye can see.

And now we saw a new style of habitation, built in little clearings that lay back from the river and hidden in the jungle. These were the homes of pygmies. Their houses are built in trees and on the tops of tall poles, about 50 feet above the ground. Here we were flying north, up the Ok-Tedi, and we saw many of these hidden villages in clearings from one to eight miles back from the stream. Obviously there is a considerable population in this area.

Toward noon we turned back and flew across to the Fly and proceeded up that stream. Here we attempted to get above the clouds to catch a glimpse of the stately Victor Emanuel Range to the north, but after mounting to 12,000 feet and still flying blind through the clouds, with temperature 39° Fahrenheit, Peck decided there was no top to them and nosed down to clear air. Again we saw clearings with tree-house villages, but they were not so numerous here as on the Ok-Tedi. These cleared places were usually well back from the river and could be seen from the air only.

The Fly River had now narrowed to a





Photograph by Dr. J. Jeswiet

NEW GUINEA LEAF-HOPPERS, NOT BUTTERFLIES

rushing stream, not good in case of forced landing; so we turned up a tributary, the Palmer River. The mountains were now quite close.

EVERY PYGMY DWELLING IS AN ARSENAL

We continued up the Palmer until it became a narrow torrent with a canopy of overhanging trees. There were no signs of habitation, so Peck turned back southward, to my great relief. Landing in those trees would have ended us. We were then about 600 miles from the nearest white settlement and more than 300 miles from our base camp. We had reached the very source of the great Fly River and had seen what we set out to see—the character of the country and the

indications of native settlement where sugar cane might be concentrated.

After we turned to fly back down the Palmer I directed Peck to land at a pygmy tree-dweller town we had seen on our way up. It stood on the Fly, just below its juncture with the Ok-Tedi. That same day we were to learn what an emotional shaking-up we gave these pygmies when we zoomed over their tree houses. No doubt they are still telling of the big hawk that came with thunderous noise out of the upper air to carry them off.

We landed, luckily, without crashing into any of the partly submerged logs floating rapidly downstream, and taxied into the backwash of a huge whirlpool which had carved a recess in the river bank in front of the village of tree houses.

We all got ashore after more or less difficulty, and Champion and I climbed to the jungle-covered bank 20 feet above us and headed for the village.

A crooked bush path brought us to the clearing, and I had my first view of one of these extraordinary habitations. Its floor was about 45 feet above the ground and its chief support was the trunk of an enormous tree, supplemented by its aerial roots and long poles brought from elsewhere (see pages 289, 291, 309).

There was no sound. The place seemed deserted. I was foolish enough to walk below it for closer examination. I know now just how foolish I was. Two hours later it was revealed that this hut was still full of savages.

Each of these dwellings is a veritable



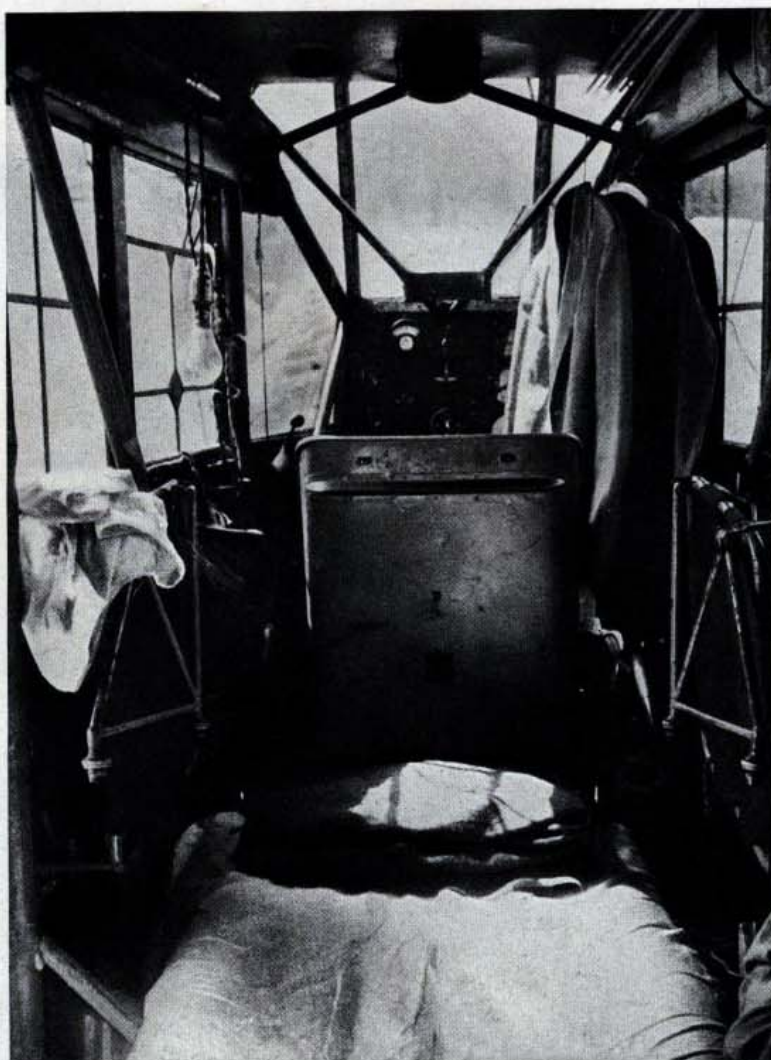
arsenal of large rocks, arrows, etc., which the beleaguered occupants shower on attacking parties through small holes in the walls and trapdoors in the floor. For some reason my head was spared. Still not knowing that anyone was in the tree house, we went back to the river's edge, at a point that seemed a landing place for canoes. Upon reaching it I heard a shout from Peck, who was still in the plane, which lay around a bend some 200 yards below us. He was calling attention to two slender canoes, loaded with people, paddling feverishly for the opposite shore about a mile upstream.

PYGMIES ARE THE  
DANDIES OF THE  
PAPUAN WORLD

We called in our most seductive tones; we even used the magic word *sambio* (peace), which worked well on Lake Murray. Finally, though not till they had crossed the stream and got under the shelter of overhanging boughs on its far side, the fleeing pygmies appeared to pause and regard us with curiosity. This was a toe-hold, anyway; so we waved red calico at them.

For a long time no move was made. Then we saw them unloading some pigs and women from their canoes.

We kept up our friendly calls and gestures. Finally a canoe with four or five men in it put out and cautiously approached. When their long craft got close enough for us to see their faces, we smiled and held up our empty hands. As their canoe scraped the mud bank, we walked



Photograph by R. K. Peck

TO PROTECT HIS PLANE IN THE WILDS, PILOT PECK SLEPT  
ABOARD

In the cabin a pneumatic mattress was unrolled and inflated. At the left is the folded mosquito net. Others in the party camped ashore.

out, smiling, and patted the little men on the back and shoulders.

The hair of the heads and beards was decidedly kinky and rather short, a much closer approach to that of the Negro than any we had previously encountered.

Looped black cassowary quills about six inches in diameter were worn for earrings. Flying-fox claws, in some cases tipped with fur or feathers, projected upward from holes in either side of the nose, the *tout ensemble* being capped by a head-dress of cassowary feathers (see illustration, page 293).

It was now that we learned that the tree





Photograph by Dr. E. W. Brandes

PERILOUS TO WHITE MEN AFOOT, ISLAND-DOTTED LAKE MURRAY COUNTRY FROM  
THE AIR IS A REGION OF RARE CHARM

In these waters blooms a beautiful coral-pink lotus whose flower is sometimes 12 to 14 inches in diameter. The author dived into murky waters seven feet deep to get the roots of one plant and, after nurturing it at Base Camp for a week, flew with it to Kikori, dropped it overboard in a small parachute, and it was planted in a garden at that post, where it is now thriving. From this point it may be brought to gardens throughout the world.





Photograph by R. K. Peck

AN UPPER FLY RIVER NATIVE PERCHES HIS HOUSE HIGH IN AIR

Behind the man is a notched-pole ladder, by which he climbs to his home. Surrounding trees, felled in a confused jumble, form a sort of *chevaux-de-frise*, preventing enemies from rushing the tree dweller's home (see text, page 311).

houses were not empty, for men began to swarm down from them. After exchanging gifts I led them to a small patch of sugar cane and made signs for them to cut me some. Then I indicated a desire to visit the village we saw across the river.

After some hesitation, because their women and children were assembled there, they consented to take us. Champion and I entered the tippy canoe, and with two paddlers in the bow and two in the stern we were shot across the turbulent waters.

At the moment of landing, a crocodile raised its warted and malevolent head beside me. We often had these reminders that the waters concealed formidable enemies and had to be constantly on the alert. It is said crocodiles have grabbed men, even from the security of their canoes.

This village had three tree houses, all like the one across the river. I gathered cane fast, as the sun was now sinking. I got five varieties. Then we bartered for weapons and ornaments. The pygmies seemed pleased with the matches, jack-plane blades, safety-razor blades, beads, and cloth which they got from us.

The timid little women, about the size

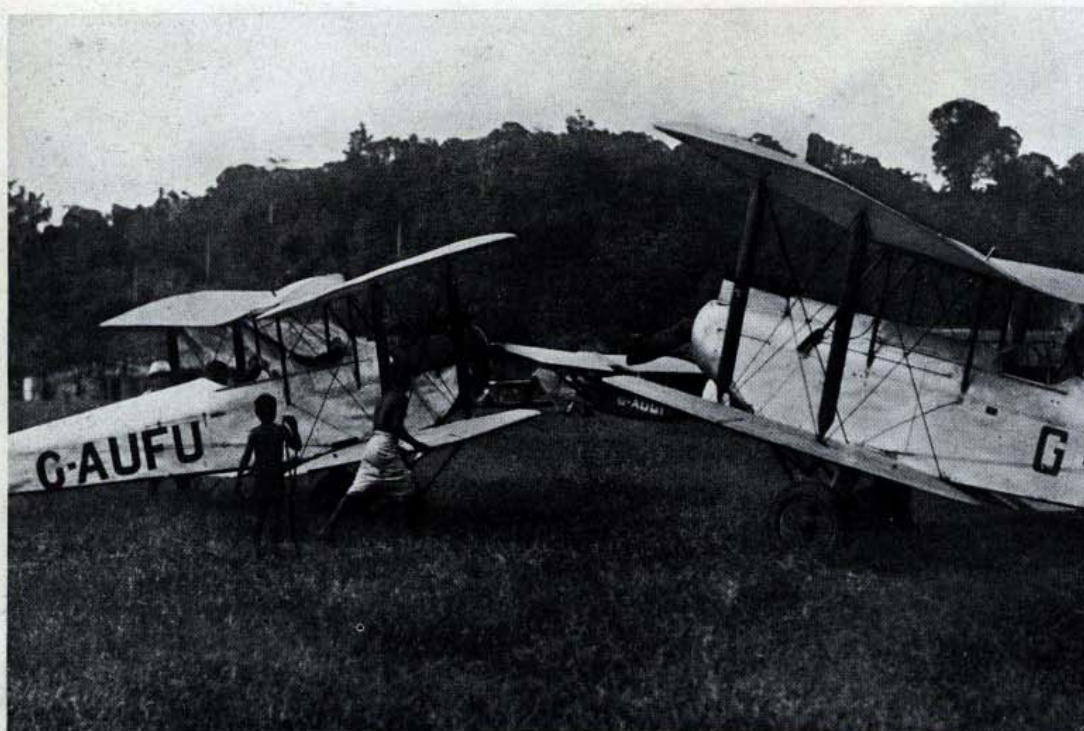
of our half-grown children, were by this time satisfied that our mission was peaceful. They emerged from hiding to view the white-skinned strangers, who must have seemed like giants to them. Unlike the men, they wore an apron of shredded palm leaf. It was four inches long in front, but considerably longer behind.

LITTLE FOLK PROVE FRIENDLY

We were led to note with pleasure the friendly, compatible natures of all these little folk, so utterly different from the fierce dispositions of the general run of natives we had fraternized with in the lake region during the previous week.

We returned to our plane, and pygmies helped us make a clearing on the bank where we could pitch our tent fly. After dinner, men from the village squatted in a circle before the camp fire just in front of the tent and we were now treated to one of the real surprises of the trip. In the light of the fire, flickering with eerie effect on two shining black faces before us, one of the men spoke up out of the guttural babel of voices and addressed us in perfectly good Malay.





Photograph by Dr. E. W. Brandes

#### A GOLD RUSH BRINGS AUSTRALIAN PLANES TO NEW GUINEA'S OUTPOSTS

Miners, prospectors, mail, and supplies are carried from coast to gold diggings. These two biplanes at Lae are ready to fly to Edie Creek goldfields, 55 miles back in the mountains.



Photograph by R. K. Peck

#### MADANG, IN NORTH EAST NEW GUINEA, WAS FORMERLY A GERMAN SETTLEMENT

On their daring flight from Port Moresby, over the high mountains, to the north coast, the Americans carried mail from the Papuan Government to the New Guinea Territory settlement at Madang.





Photograph by Dr. E. W. Brandes

#### WUSSI RIVER MEN COLLECT CANE FOR THE EXPEDITION

Because these natives were in contact with German traders and officials when, in pre-war days, Germany controlled North East New Guinea, they speak a few words of German. They call small coins "marks."

This man, Jarep by name, had been over the line in Dutch New Guinea and had associated for years with a band of Malay bird-of-paradise hunters. Peck is quite proficient in Malay; so we gave up grunts and signs for a basis of real understanding.

With what delight the other Negritos welcomed this opportunity to get a tangible explanation of our presence there and to exchange ideas! We learned the native names of villages, rivers, and individuals; of their constant dread of the bad men below, and the reasons for their peculiar styles of architecture, together with much of historical interest.

Jarep said that when our "great hawk" appeared over his village all the people immediately concluded that their last hour had arrived and they would soon be eaten. They pitched themselves violently on the ground and buried their faces in the earth. It was only after they had recovered that we saw them paddling across the river for dear life, with pigs and women aboard.

We talked until about 10:30, and learned that another village, which we had sighted from the air, was within walking distance. So, with the promise of an escort to conduct us to it on the morrow, we turned in with a feeling of complete security in the land of our new friends. The natives repaired to the trees, from which we heard, during our periods of wakefulness, the sound of drums and eager, excited voices until the sun rose.

#### TREE VILLAGE IS PROTECTED BY HURDLES

Champion and I started through the jungle next morning, leaving Peck to guard the seaplane. We followed a well-marked trail and were accompanied by 15 or 20 of the little men, who rushed ahead to break down branches, bend saplings aside, and clear the path, for we were so much larger than the people who customarily used it. They kept up a chatter and smilingly beckoned us on when they stopped to bend down a sapling.





Photograph by Dr. E. W. Brandes

## FROM ABOVE, COCONUT GROVES LOOK LIKE VAST AREAS OF GREEN MOSS

This commercial coconut plantation is set in orderly rows and is well cared for, with a lane running through it. It stands on the coast, between the mouth of the Sepik River and the important north-coast town of Madang (see page 310). The three white splotches are native villages. A meandering river makes an island at the right.

After going about five miles, it became terrifically hot in the sweltering, steamy woods. At this point we encountered what seemed like hurdles across the path. They were merely saplings, cut with stone axes so they would lie transversely 20 to 24 inches above the path, about 3 feet apart. With every step it was necessary to pick up one's feet like a high-stepping horse. After two miles of this my feet weighed at least a ton each! The pygmies bounced along on these obstructions like squirrels or cats; but when I tried this the poles broke and let me down. I could not conceive of a more effective way for the

pygmies to confuse and confound their heavier pursuers until they were able to assemble for defense of their little fortresses (see page 309).

Another mile brought us to the clearing. Here were signs of activity indeed. For fully a quarter of a mile, between the edge of the clearing and the nearest tree house, there was a hopeless tangle of tree trunks extending in all directions and covering the ground for a height of from 6 to 15 feet, making it impossible to proceed except over the insecure branches and trunks.

Over this barricade of fallen jungle we





AN AIR VIEW OF FENCED, RECTANGULAR GARDENS FARMED BY SEMISAVAGES EAST OF THE MOUTH OF THE SEPIK RIVER



Photographs by Dr. E. W. Brandes

BRAVE MISSIONARIES HAVE PUSHED THEIR PERILOUS PATH INTO DARK NEW GUINEA

It was here, at Marienberg Mission, 60 miles up the Sepik River, that the Expedition met the steamer *Franklyn*. Father F. J. Kirschbaum, who founded this mission, accompanied the author and Aviator Peck to the foothills of Victor Emanuel Range.





Photograph by Dr. E. W. Brandes

#### CANOEMEN OF THE LOWER SEPIK STAND WHILE PADDLING

The long, fairly light canoes are very flexible. When twelve or more men are paddling, the middle portion of the canoe can actually be lifted from the water by ingenious knee-flexing and teamwork. During this feat the descending arch in the bent canoe violently slaps the water as the boat leaps forward.

eventually reached the tree house. The villagers told us their garden was a mile or two downstream, on the river bank. We could have flown there in five minutes and landed easily on the water in front of the village.

#### EACH PYGMY CARRIES HIS OWN FIRE-MAKING APPARATUS

We went by canoe to the garden. It consisted of taro, bananas, sugar cane, and tobacco planted in the same disorderly fashion seen in all native gardens previously visited.

Each pygmy carries his own automatic lighter, a long piece of split rattan wrapped many times about his middle (see illustration, page 292). To start fire he loops this strip of rattan around the end of a cleft stick of dry wood, with some dry punk or tinder in the cleft; then he rapidly draws the strip back and forth, in contact with the combustible material. In about 10 seconds smoke appears and the glowing tinder is fanned into flame.

About six kinds of cane were found in this garden. After photographing them and collecting specimens, we started back on the second lap of our obstacle race to rejoin Peck. Less than a half hour after toiling through that steamy jungle we were in winter temperature, at an elevation of 13,000 feet, flying above the lake plain, 50 miles away.

We had quit the pygmies with real regret, but now took advantage of a clear

day to photograph and sketch from our high vantage point some of the numerous heretofore-undiscovered lakes in the eastern part of Dutch New Guinea and in western Papua.

One new lake we found and named Lake Herbert Hoover (see inset map, page 255). We so placed it on record at Port Moresby; this not because of any occult hints about political developments in the country we had left nearly five months before, but because of Mr. Hoover's sympathetic promotion of commercial aviation while heading the Department of



Commerce, and his popularity in Australia, where he formerly engaged in mining enterprises. This pretty New Guinea lake lies partly in Dutch and partly in British territory.

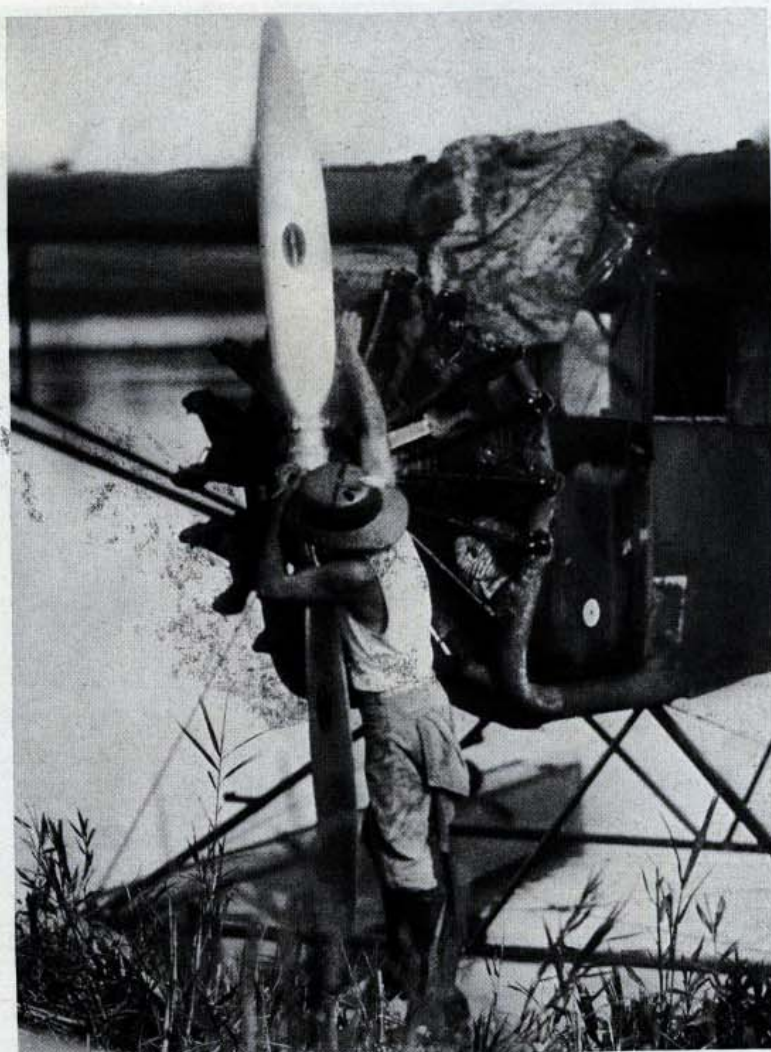
Here I must sketch briefly our movements till we reached the former German New Guinea, now administered by Australia under mandate from the League of Nations.

The party now divided. Dr. Jeswiet, Mr. Pemberton, Mr. Champion, and Mr. Bannon, with about 100 carriers, proceeded afoot to the mountains behind Rigo, a station 40 miles east of Port Moresby, while Mr. Peck and I continued by seaplane to collect cane along the north coast and up the rivers of the mandated territory.

#### FLYING BLIND OVER MOUNTAINS AT 14,000 FEET

August 24 we set out to cross the high mountains between Port Moresby and Buna, with Lae, in the former German territory, as our destination. Behind Port Moresby were impenetrable high clouds; so we flew east, along the coast, seeking a clear spot for climbing over the mountains.

As conditions did not improve, we started to climb anyway and at 11,000 feet headed inland. Soon the coast plain was left behind and we were above the first range of mountains. Villages could be located on the very tops of mountains. They were near to, yet far away from, other villages, on neighboring peaks, on account of the deep intervening valleys.



Photograph by Dr. E. W. Brandes

#### AVIATOR PECK AT WORK ON HIS MOTOR

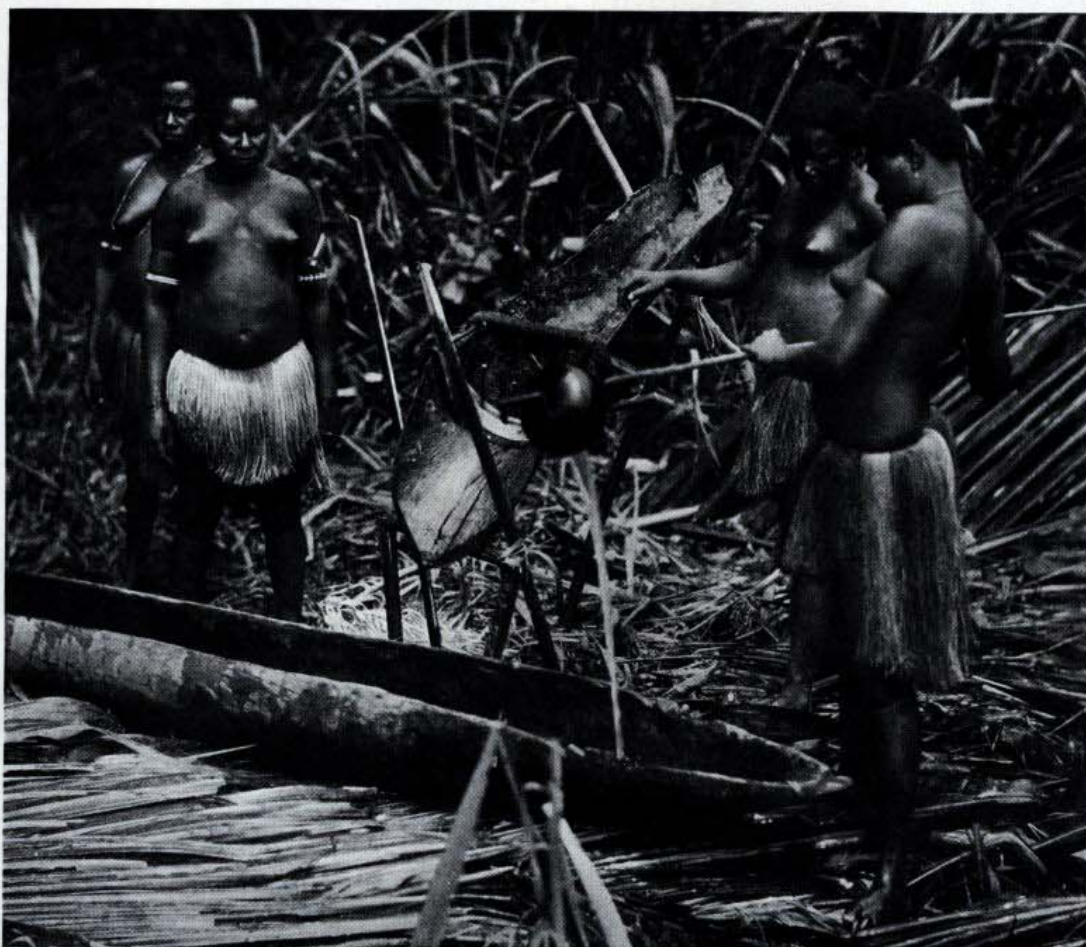
In far-away New Guinea, remote from spare parts, shops, and mechanics, life depended on infinite, unflagging attention to the seaplane. On the Sepik River, near the Marienberg Mission (see page 313).

Large clearings, probably for gardens, could be seen on the steep, wooded mountain slopes below these villages. Far below, rivers, like narrow silver ribbons, were glimpsed cascading through the deep valleys.

Soon we were in the swirling mists momentarily mantling the higher peaks. Through the rifts we could see the interesting panorama below.

Suddenly we were flying blind at 14,000 feet, with the wing tips barely discernible. It started to rain, and I saw Peck look anxiously at the thermometer on a wing strut. It registered 33° Fahrenheit. A





Photograph by Dr. E. W. Brandes

#### SAGO TAKES THE PLACE OF BREAD

To make sago in New Guinea, men first go into the swamps and fell the sago palms (see illustration, page 320). Then with sharp-edged mallets they pound the nutritious pithy stems. Reduced thus to pulp, the sticky mass is taken in hand by women, who wash out the starch grains, as shown here.

drop of one degree would mean taking a load of ice on the wings. We could not lose altitude without the danger of crashing into the side of one of the numerous mist-shrouded peaks just below.

Fortunately, after 20 minutes of suspense, we burst into bright sunshine, but a heavy blanket of clouds still obscured the mountains below. Doubtless we had now passed the highest of them. Rifts appeared in the clouds, and with relief we saw the coastline far to the northwest. Peck headed for it, and soon we were over the Musa River, which we followed to the sea; then headed northwest, to follow the coast to Lae.

The north coast is distinctly different from the south. In general the moun-

tains are much closer to the sea, in some cases rising abruptly to great heights from the water's edge, with rocky shelves instead of sandy beaches.

We landed at dusk, in the open sea, at Lae, after a circuitous flight of five hours.

Next day we took off for the Sepik River, stopping at Madang, the chief town of North East New Guinea, to deliver the official mail from Port Moresby.

#### OFF FOR AMBUNTI, 260 MILES UP THE SEPIK

Ashore, we were taken in by Father Franz Josef Kirschbaum at the mission. With this German priest we were to ascend to the headwaters of the river, 650 to 700 miles from its mouth and only





THREE LONELY WHITES ARE STATIONED AT AMBUNTI

The Union Jack of the British Empire floats bravely from its flagstaff at this police post, far up the Sepik River (see, also, illustrations, pages 318, 319, and text, page 322).

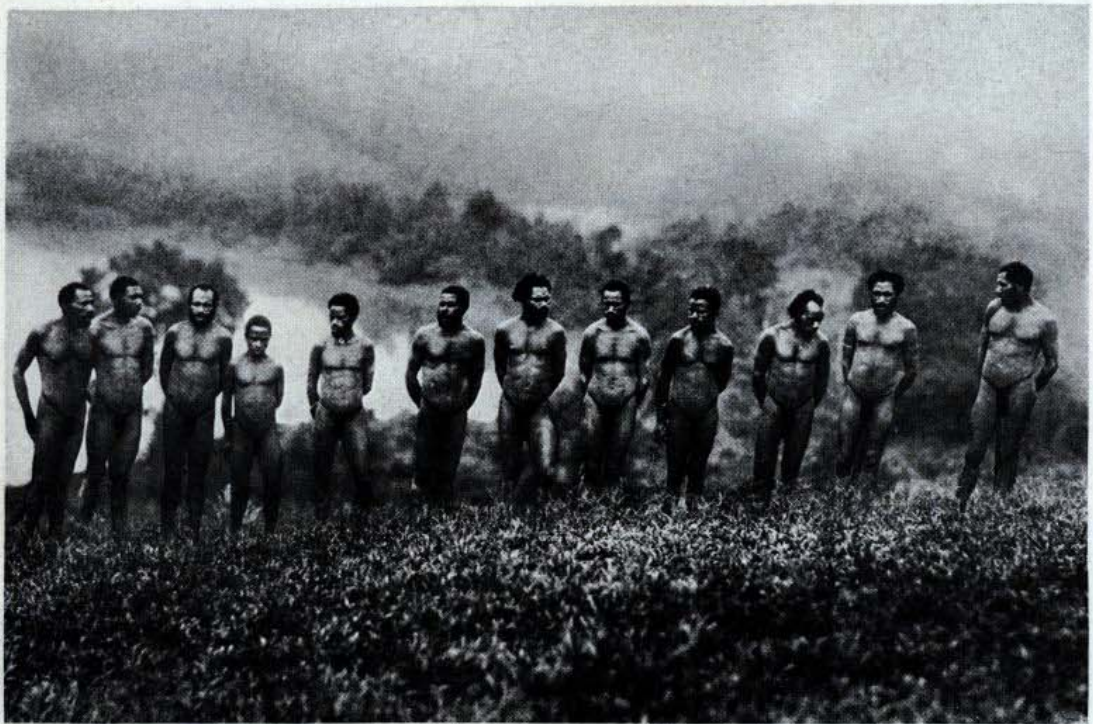


Photographs by Dr. E. W. Brandes

THE EXPEDITION'S PLANE REACHES AMBUNTI, 260 MILES UP THE SEPIK (SEE ABOVE)

On the bank in the background is a field of flourishing cane, which proved to be a variety of a new species, *Saccharum robustum* (see, also, pages 276 and 285). It is peculiar in that its flesh is red and is the only one of its kind found in New Guinea (see text, page 325).





BUSHMEN OF THE UPPER SEPIK WEAR NOT EVEN ORNAMENTS

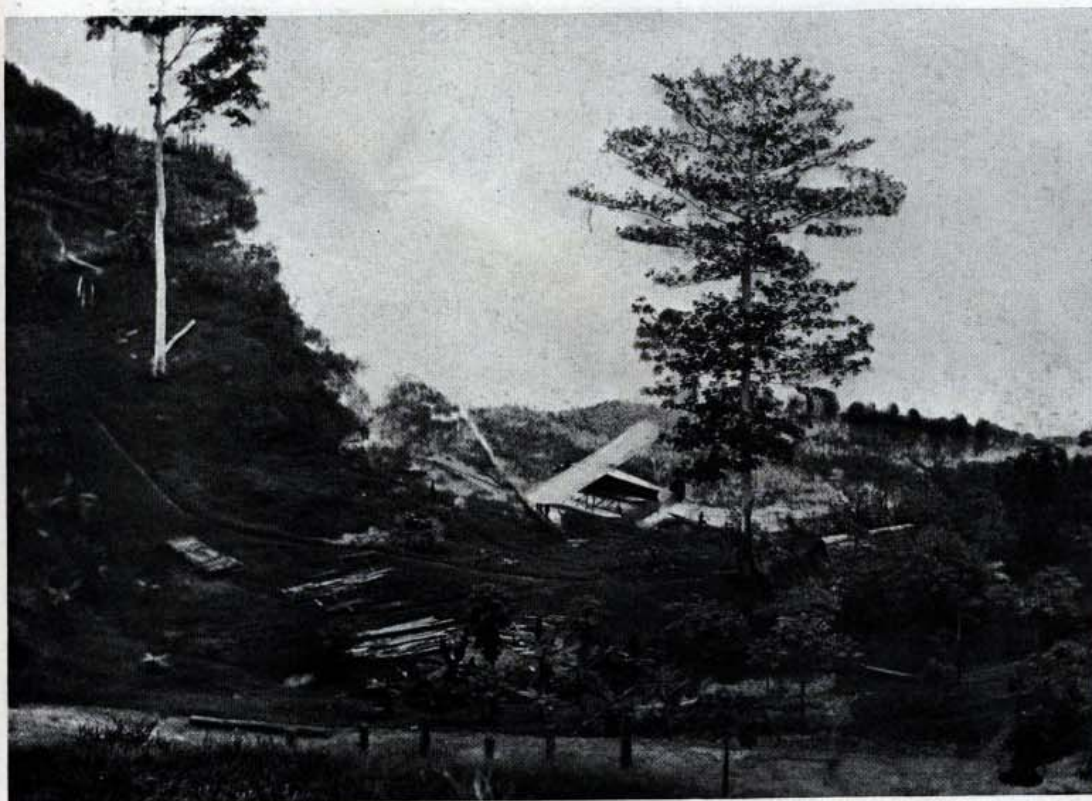


Photographs by Dr. E. W. Brandes

AMBUNTI NATIVES CARVE THESE DRUMS, SHIELDS, AND WEAPONS FROM WOOD

The wooden shields are carried by spearmen and are very heavy and awkward. The two tall cylinders in the center are used for calling crocodiles, supposedly by inserting one end into the water and then suddenly jerking it out, making a gurgling, grunting sound (see page 329).





Photograph by Dr. E. W. Brandes

THE SEAPLANE AT THE POLICE STATION IN AMBUNTI

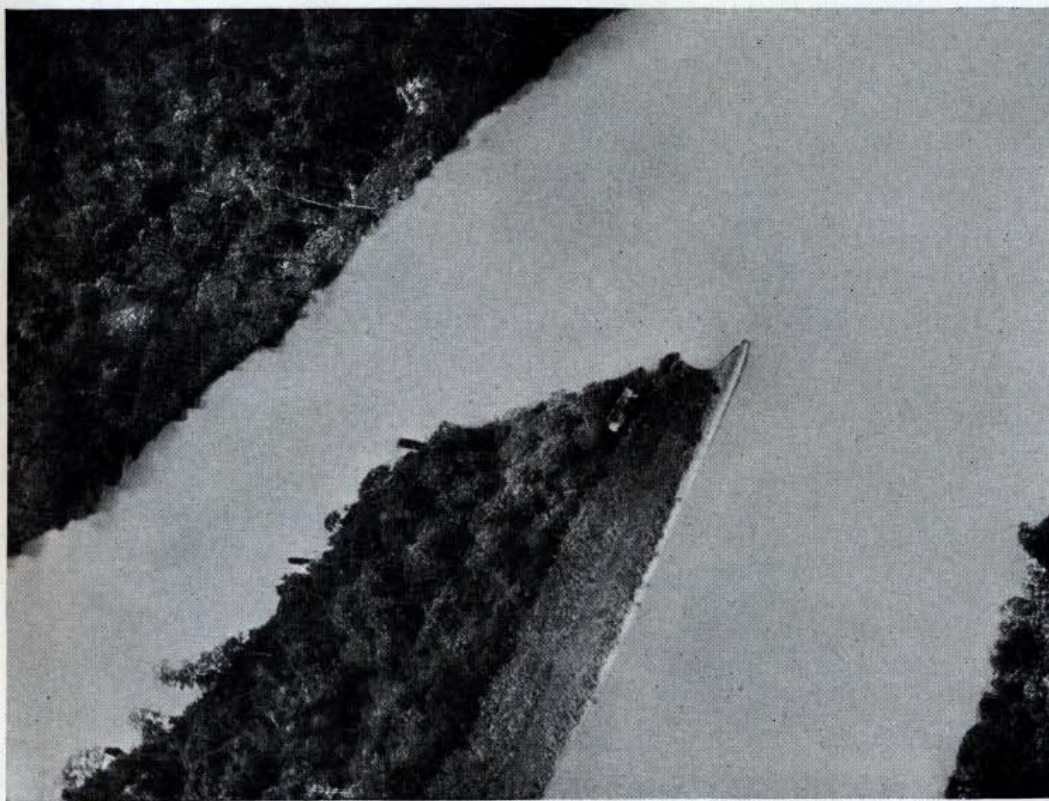


Photograph by Father F. J. Kirschbaum

BESIDE THIS STRANGE FIGURE ORATORS STAND WHEN SPEAKING

When a native of the middle Sepik district wishes to draw especial attention to a certain statement, he adds emphasis to it by pausing to lay a straw on the platform behind this startling effigy.





AN ISLAND IN THE UPPER SEPIK, WITH A HOUSE ON ITS POINT

Up this river the American plant hunters explored regions never before penetrated by whites. Signs of human habitation were rare and widely separated.



Photographs by Dr. E. W. Brandes

A STALWART YOUNG WOODSGUARD ON THE SEPIK

He belongs to a group of natives who have camped temporarily in the swamps to make sago (see illustration, page 316). His job is to find and fell the sago palms (see, also, text, pages 270-271).





A SAVAGE WHO HELPED TO SAVE THE AIRPLANE

When the airmen descended on the upper Sepik River and were being swept downstream by swift currents, this undaunted native seized a rope thrown to him and aided in preventing disaster (see text, page 323). In his nose he wears a cylinder of bamboo; about his neck is a chain of seeds of Job's-tears. He wears a girdle of the same seed, together with one of human or pig bones. His tight armband is of woven split rattan.



Photographs by Dr. E. W. Brandes

HE MADE HIS PRISONERS BRING IN THEIR VICTIMS' HEADS!

This is Lance Corporal Bellewi, hero of Ambunti Police Camp, on the Sepik (see page 322). His was an incomparable feat. Aided by only one policeman, he captured 24 jungle savages wanted for murder and marched the whole group four days into camp, compelling each culprit to carry along as evidence the head of a victim. He is a fine type of the civilized native, and has been promoted by the Australian authorities.





Photograph by Dr. E. W. Brandes

THE SEPIK, SEEN FROM ABOVE AMBUNTI, TWISTS AND TURNS  
THROUGH THE JUNGLE

about 80 or 90 miles from the point we reached on the Ok-Tedi just a month before.

After replacing our starboard exhaust manifold, which had practically fallen to pieces and permitted sheets of flame to lick up along the fabric when idling, with one improvised out of corrugated roofing iron, we started up the river with the Government station, Ambunti, as our objective.

Ambunti is the one other settlement on the Sepik. It also has a white population of three, consisting of a district officer and his assistants. This is the farthest inland police station of either territory, being about 260 miles from the mouth of the river (see pages 317-319).

Flying up the Sepik, we passed over many villages, all recognized by Father Kirschbaum, who had visited them.

Topographically the region is unlike that drained by the Fly. The river passes through a gap in a range in the vicinity of Ambunti. Beyond this, as one goes inland, the country again becomes level and a vast plain spreads in view; but mountains can be seen in every direction at all times.

The next change of significance along the river is afforded by the foothills of the central mountains, succeeded by range upon range of gradually increasing elevation, finally culminating in the majestic splendor of the Victor Emanuel Range. Altogether, it is a far more varied prospect than the prairie of the first 400 miles up the Fly.

The flora, as seen from a mile up, is also different. Instead of

the broad ribbon of tall jungle marking the course of the Fly, we saw here small, isolated islands of timber irregularly disposed throughout a sea of grassy plains.

We landed in a beautiful cove at Ambunti and were met by the district officer and his two aides, whose only compensation for their lonely existence must be the unique experience that is theirs.

We pushed on next morning, and in a little more than two and one-half hours were beyond the frontier and over Dutch territory, close to the tall mountains. For the last 100 miles all human habitations were built singly, in small clearings back from the river, or on the tops of the hills at elevations of two to three thousand feet or more.



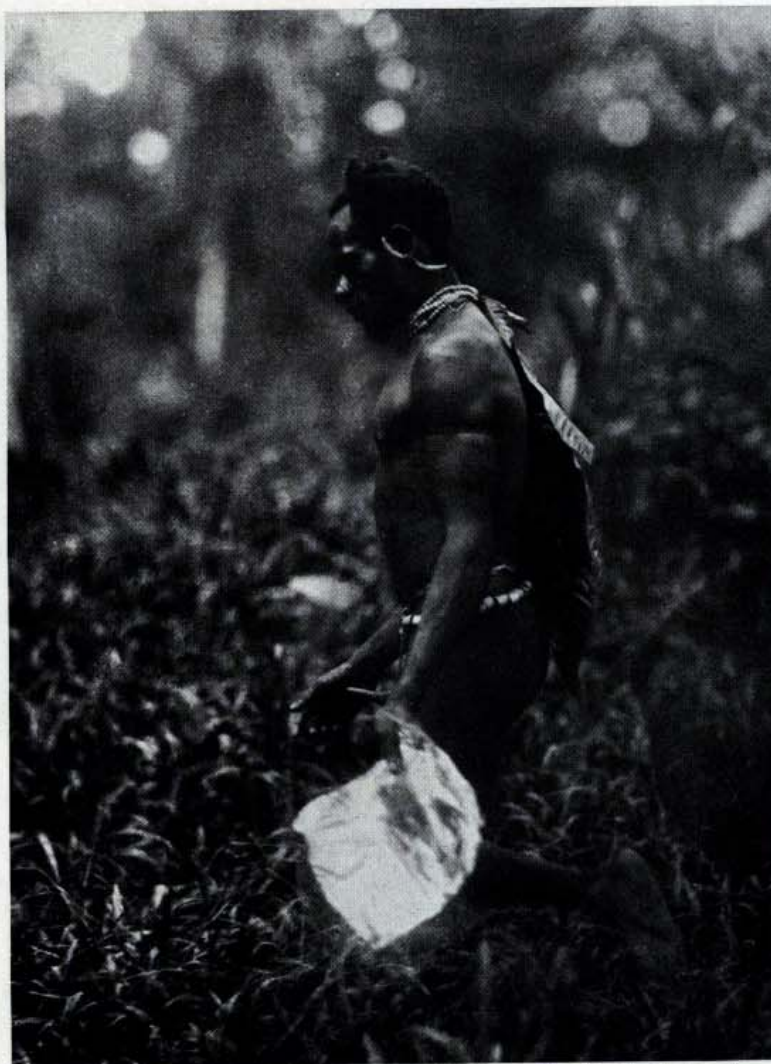
The river here was narrow and by the force of the current churned to a milk-white fury. We circled into Dutch New Guinea not 20 miles from the source of the Mambaramo, the third great river of this island; then recrossed the border and landed above a house from which natives had been seen fleeing.

A NAKED SAVAGE  
HELPS TO SAVE THE  
PLANE

Our experience in mooring was nearly tragic. It was my job to heave out the mud hook; but, with ten fathoms of line out, there was no check to our headlong course down the river. Another ten fathoms were added, making a total of 120 feet, but with similar results. An odd piece of line from the pontoon was hooked on and we came up with a jerk, but began to swing crazily in arcs, from one bank to the other, in a pendulumlike motion.

Each time we approached a bank it seemed that the wing tips, projecting far out, would be crushed against the tree trunks; but each time they missed by a hairbreadth. The strain on the anchor rope made it sing and we expected to see it snap any minute. It was physically impossible to shorten the line paid out, and we lost ground every time we tried it. Likewise it was impracticable to swim ashore with a rope in the fierce current, as the swimmer would have been swept quickly downstream.

Desisting in our efforts momentarily, we saw a naked individual standing right at the water's edge, not more than 100



Photograph by Dr. E. W. Brandes

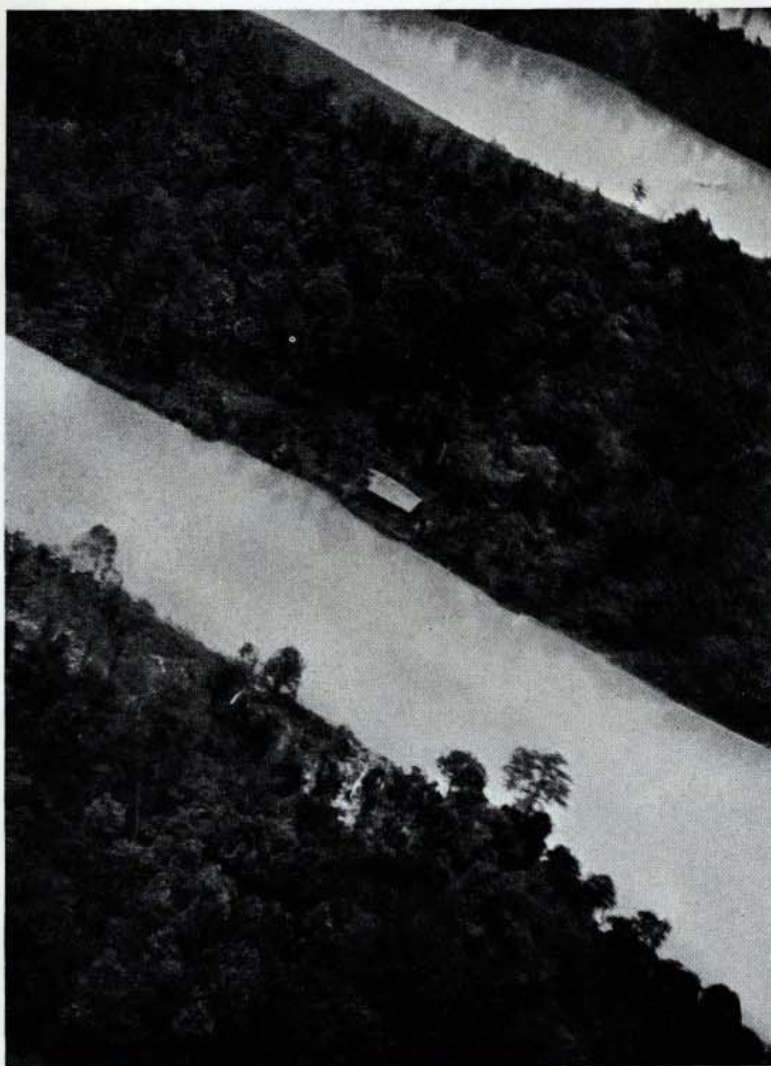
A TINFOIL FILM-PACK WRAPPER IS A GREAT TREASURE TO  
THIS SEPIK RIVER NATIVE

feet away, regarding us with a ludicrous expression of fear and amazement. I cannot imagine why he had not joined in the headlong flight of his fellows. In our entire experience this was the only wild man who had ever actually stood his ground during our approach (see page 321).

But it was providential for us. When we motioned him to take a rope and secure it to a stump, he actually did so. From the moment we took notice of him, this fellow threw back his head and uninterruptedly trumpeted in a nasal tone of peculiarly full, round but penetrating timbre, extending his arms to us in a supplicating manner all the while.

We discarded the idea that he was more courageous than the others and decided





Photograph by Dr. E. W. Brandes

THREE CONVOLUTIONS OF THE CROOKED UPPER SEPIK APPEAR  
AS PARALLEL WATERCOURSES

On the jungle-choked river bank, 600 miles upstream from the sea, stands a small village. Here the river is very swift.

that he was merely a mental case, but an extremely useful and accommodating one. We stepped ashore with a bag of trinkets and rewarded him with an assortment of beads and fishhooks. He accepted them without leaving off his peculiar calls, with his almost prehensile lips extended like the bell of a clarinet. The sound carried through the jungle for a great distance; it soon became evident that he was signaling to the deserters, who doubtless were watching from a safe distance.

We indicated by signs that we were thirsty and hungry, and with the aid of a coconut husk showed a preference for

that happy combination of meat and drink. This was a lucky gesture, also, and obviously it was viewed by anxious eyes peering at us unseen from the jungle; for soon five or six men came from all directions, bearing a propitiatory offering of coconuts. They placed these on the ground near us and then retired to a safer distance—all but the trumpeter, who now desisted from his musical "Whooooooooo" and regarded us attentively.

We in turn could now observe the natives in some detail.

Most of them were nearly black, but two or three were chocolate-brown and all except two wore full beards. The hair was kinky to wavy and seemed to indicate that the people here are not racially homogeneous.

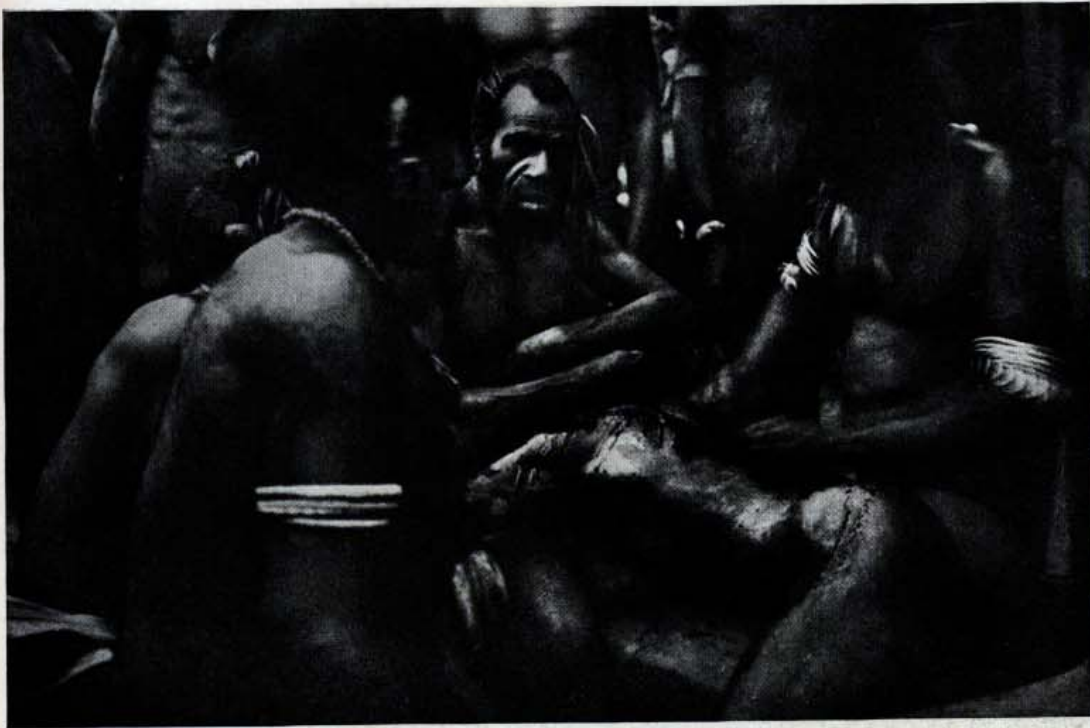
SEPIK SAVAGES REGISTER EXCITEMENT BY  
GOURD-RAPPING

The men wore ornaments of pig vertebrae strung like beads,

necklaces, and girdles mostly, but also suspended singly or in crossed pairs from the shoulders, so that they resembled the Sam Browne belt or a pair of "galluses." The most distinctive article of personal enhancement was the long, attenuated gourd worn as a sort of apron by the men.

In place of the long-drawn-out whistle with which the middle Fly natives expressed astonishment, these men would rap violently on this gourd with the finger nails by holding the index finger on the ball of the thumb and releasing the muscular tension suddenly, like a small boy shooting marbles. At every fresh evi-





Photograph by Father F. J. Kirschbaum

IN SUCH TRIBAL INITIATION RITES MEN OFTEN DIE UNDER THE KNIFE

Because mortality is so high, the "candidates" are frequently unwilling to submit and must be held. This sanguinary ceremony, photographed on the banks of the Sepik River, does not differ materially from the preparations for a feast on human flesh, in which the victim is dismembered and the various parts of his body are wrapped in banana leaves and cooked in covered pits with heated stones.

dence of the white gods' magic we would be treated to a chorus of raps like the rattling of castanets.

NEW SUGAR CANE WITH GARNET-RED  
FLESH IS FOUND

Their pipes were long tubes of bamboo. Because of the extreme timidity of these wild creatures, I attempted to gain their further confidence by taking advantage of their taste for tobacco, plants of which were seen in the clearing. After rolling a cigarette and presenting it to a man, much after the fashion of enticing a wild alley cat to come for a bone, I struck a match to the accompaniment of a symphony of gourd rapping. Finally, after he had ducked away several times, I succeeded in lighting it for him. Then his face fairly beamed, and for the next half hour I was pressed into service as official cigarette roller for the entire village. When they inhaled they sucked in the

breath so sharply through their teeth that they sounded like a flock of birds singing.

On this trip a wild sugar cane of considerable interest was discovered. The flesh, from rind to center, was a deep garnet-red, and the plants were unusually vigorous, but deficient in sugar.

In one village near Ambunti neither men nor women wore coverings of any description. We did not land there, but later got pictures of some of the men at Ambunti, where they posed for us. They are of an extremely bestial type.

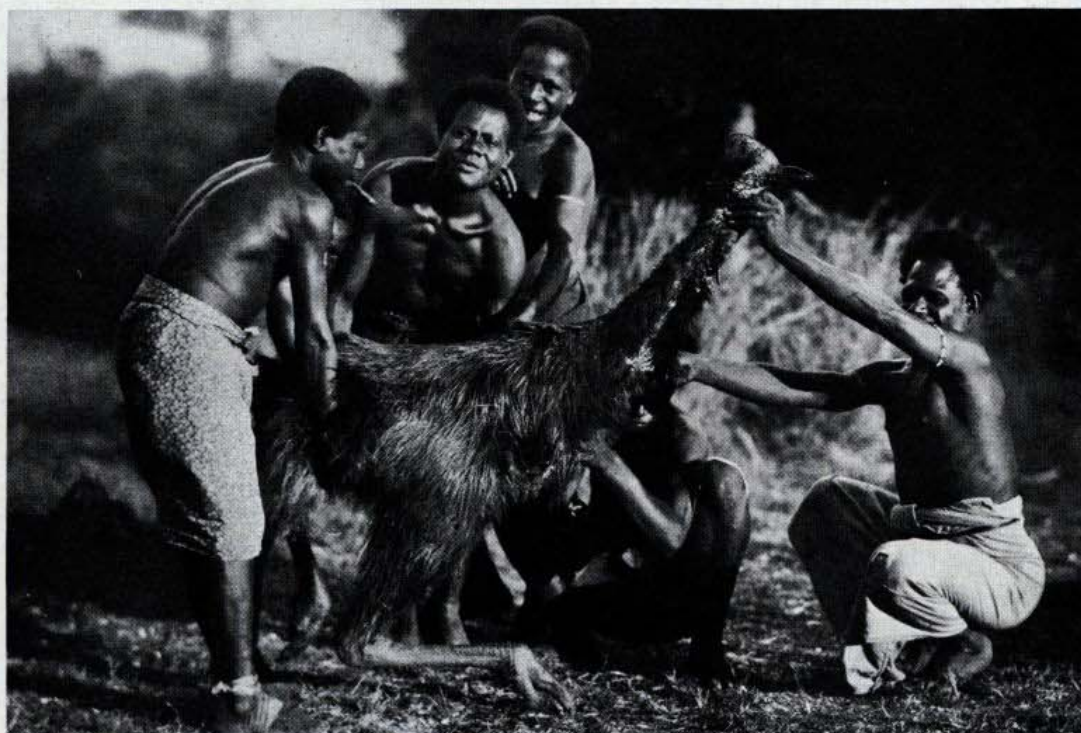
On the other hand, the material culture of some of the Sepik natives is of a high order. Despite this, they are cruel, blood-thirsty savages under the skin, and a short time before our arrival a group from one village raided another and secured 23 heads as trophies.

We landed at a number of these middle Sepik villages, some on the river and others on small marshy lagoons or lakes. A fair proportion of the natives of this region had seen white men before, as labor





BROTHER JOACHIM (LEFT) WAS A BUTCHER BEFORE HE BECAME A MISSIONARY  
At the right stands Pilot Peck. It was Brother Joachim who resumed his earlier calling to make cassowary sausage for the members of the Expedition (see below).



Photographs by Dr. E. W. Brandes

#### FIVE NATIVES DISPLAY A CASSOWARY

This giant fowl, from whose claws arrow heads are made (see illustration, page 295), was shot in the jungle behind the Marienberg mission house, 60 miles above the mouth of the Sepik River. From the flesh Brother Joachim (see above) made a supply of link sausages, the only food the Americans had during several flights.





Photograph by Dr. J. Jeswiet

#### A SUGAR-CANE GARDEN IN THE VILLAGE OF BARATAKA

For protection during growth, preparatory to cutting and shipment, the cane stalks are tied to long poles set in the ground beside each hill. Boys climb up to horizontal connecting poles to clean the cane and keep it tied to the uprights. Note the identifying serial number of one of the 130 varieties of cane brought back to America. Barataka is a mountain village inland from Rigo.

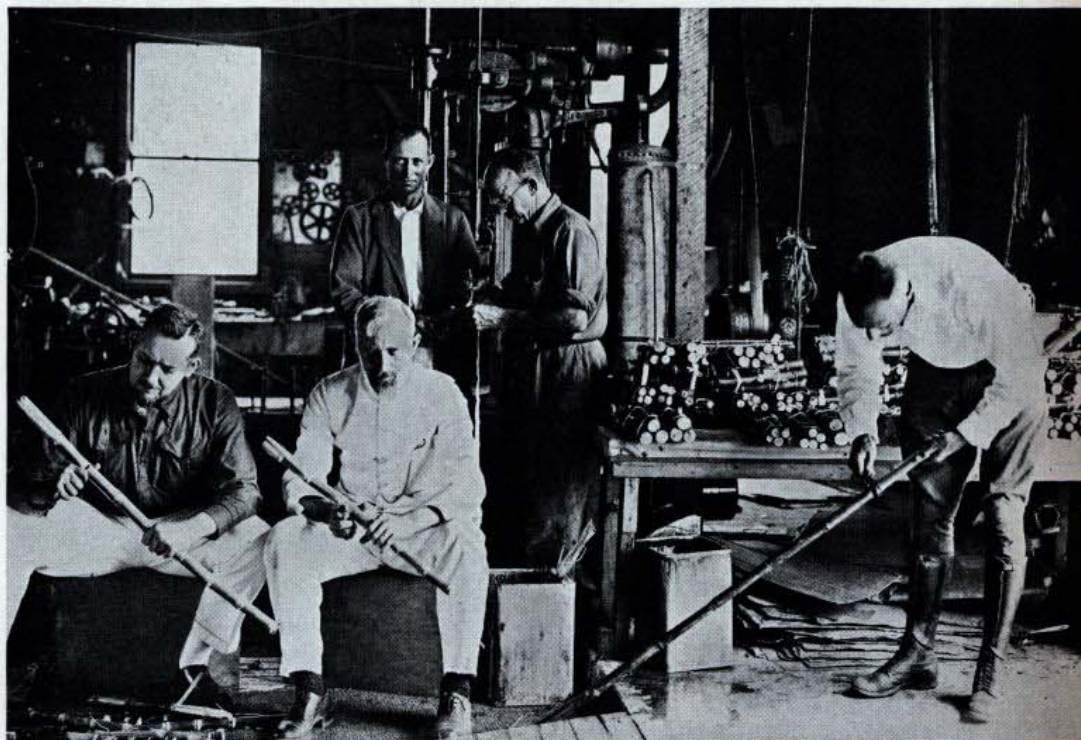




Photograph by R. K. Peck

#### MAKING CANE JOINTS READY FOR THEIR LONG VOYAGE TO AMERICA

Of course the Expedition had to be on its guard against any harmful insects that might stow away on cane specimens. Here Mr. Pemberton is seen trailing a dangerous parasite, while Dr. Jeswiet and his "boy" look on.



Photograph by Dr. J. Jeswiet

#### SUGAR-CANE CUTTINGS HAD TO BE CAREFULLY PREPARED FOR SHIPMENT

Adventuring by seaplane, canoe, or on foot into jungles in quest of cane was not the only serious task. Infinite pains were taken in packing to keep cane joints alive.



recruiters occasionally go up the river as far as the Government station, and of course the three Government officers and Father Kirschbaum circulate among them to some extent. It should be remembered, however, that the region in which they operate is about the size of the State of Pennsylvania and is bordered on the south by a great unexplored area, the one we had just glimpsed from the air. Consequently we were looked upon even here as objects of great curiosity.

A description of one middle Sepik village will suffice for all.

NATIVE CLUBHOUSES 50 FEET HIGH AND  
150 FEET LONG

The natives of Jaurangei, which is built on a long, crescent-shaped lagoon, 30 minutes by air downstream from Ambunti, had seen the airplane as it passed high over their well-concealed retreat on its way to the vast, silent interior; so they were not entirely unprepared when it reappeared and descended from the sky to the placid water of the lagoon.

As we taxied toward the bank a large crowd of naked black men, with here and there a striking, ghastly specimen painted chalk-white from crown to heels with pipe clay, assembled on the beach to receive us.

The main feature of the village is a series of three great structures, spaced about 500 feet apart, in a straight line through its center. These are the house *tambarans*, or clubhouses, of the men of the different clans comprising the village. Unlike the dubu houses of the Fly or the ravis of the Papuan Delta country (see text, pages 269 and 275), they are not dormitories, but are for ceremonial and other meetings, and are used also as repositories for sacred objects.

These buildings are about 50 feet high and 150 feet long, made of thatched palm sides and roof on a framework of more or less artistically carved logs of enormous size and length. The posts that support the roof at either end are carved like totem poles, to represent men and beasts, from base to peak, terminating 50 to 60 feet above the ground in a carved hornbill posed for flight. This portion projects six or eight feet above the ridgepole, which is lashed to the post.

Invariably the lowest figure represents

a nude woman, the buttressed roots of the tree from which the post was taken nicely adapting themselves to represent her extended lower limbs. These carvings are not at all crude, but indicate a fine perception of anatomical detail on the part of the artists.

The earth floor of the *tambaran* is compacted by the tramping of countless feet, so that it is almost as hard as cement. Here are stored the drums, made of hollowed logs 8 to 12 feet long and 3 feet in diameter. A slot 6 inches wide extends nearly to the ends of the log, and from this narrow aperture the woody interior has been laboriously chipped out, leaving a hollow, resonant shell.

The ends of these great drums are artistically carved in the form of birds, reptiles, or men. To sound the drum, a heavy pestle-shaped club is inserted in the slot and the anointed priest of the drum moves up and down its entire length, as he rattles it against the lips of the slot, producing a deep-throated percussion that carries for a prodigious distance in the stillness of the night.

When eight or ten of their drums are sounded in unison, the noise is deafening.

DRUMS, SHIELDS, AND HEADRESTS ARE  
ELABORATELY CARVED

A richly carved tube, constricted at the middle and roughly resembling the spindle-shaped drums, but much longer, was observed, and its peculiar use is worth recording. It was explained that these instruments are thrust into the water of the river, and upon being suddenly withdrawn they make a sound resembling that of a crocodile's call and presumably attract these reptiles to the hunters.

Immensely heavy wooden shields for spearmen, headrests for sleeping, and stools, all wonderfully carved, were seen in abundance. Suspended from the ceiling were carved wooden figures of nude men and women with clusters of wooden hooks at their feet, on which were hung miscellaneous articles of value. These figures are representations of spirits who guard the valuable objects from defiling hands.

The gable ends of the buildings were pierced with small openings, geometrically arranged and having wooden spikes





Photograph by Edwin L. Wisherd

#### GRUESOME ACHIEVEMENTS IN BARBARISM FROM NEW GUINEA

Left to right: A sculptured skull from the Strickland River country; stuffed human head from the region of Lake Murray (see text, page 295); ornamental wooden comb carved by Wussi River natives; carved wooden drum from the Ok-Tedi country; stone ax from the Fly River region; the skull of a raid victim with built-up face of painted clay, from the Sepik River (see text below).

projecting upward from the lower sills. On each spike was a grinning human skull, facing outward—a warning perhaps.

#### WOODEN TUBES USED AS "MOSQUITO NETS"

Of outstanding significance is the practice here of building up with clay the faces of enemies, and perhaps deceased relatives as well, on the original skulls. These curious objects are provided with cowrie

shells for eyes and the natural hair is replaced. When the finished article is painted it is strikingly realistic (see above).

The most interesting single item in the dwelling is the infernal contrivance used as a protection against mosquitoes. As a rule, two or more of these "sleeping bags" are found in each house, one for each family under the same roof. They are simple tubes, closed at one end, made of





Photograph by Charles Martin

THE AUTHOR EXAMINES A CIGARETTE HOLDER "MADE IN NEW GUINEA"

These artifacts reveal the nature and degree of tribal culture in widely separated regions of the island. At the left is a cuirass of woven rattan made by the Ok-Tedi jungle pygmies; the cigarette holder is from Lake Murray. Below is a wooden neck rest or pillow from the Oriomo River. In the left background is a silhouette woodcarving from a tributary of the Sepik River, and at the right are long-nosed wooden masks representing spirits of the departed, Sepik River. In the center is a figurine with hooks for feet. Objects hung on these hooks are inviolable and may not be removed by anyone except the owner. In his observations of native customs and handicraft, the author received invaluable assistance from Mr. F. E. Williams, Government anthropologist for the Territory of Papua.

tightly woven matting and supported by hoops of split bamboo, spaced about three feet apart, on the inside, throughout their length. The average size is 10 feet long and 3 feet in diameter. There is no supporting hoop at the open end and it is merely collapsed on the floor at this point.

The householder, with his numerous wives and children, enters this almost airtight torture chamber on his hands and knees and swelters in the foul air in preference to being devoured by mosquitoes.

We caused a great commotion in one of these peaceful dwellings by taking motion

pictures of routine activities of the inmates by the aid of sputtering calcium flares.

Again back at Marienberg mission, we prepared our valuable collection of plants for the return journey to Port Moresby. On the day of our return the "shooting boy" brought in a fine cassowary. This giant bird has a leg as large at the thigh as that of a man. A second cassowary, bagged the following day, was made into sausages, our food on the return flight to Port Moresby (see page 326).

Game abounds here. The cumbersome



hornbill thrashing through the air in noisy flight, the goura pigeon, large as a young turkey, and even crocodile eggs made up part of our menu. I managed to eat the crocodile eggs, but candor compels me to state a preference for the barnyard variety, served with ham in the United States.

It is amusing to add that the shooting boy had climbed to the roof of the cook-house to get a better view of us when we made our first appearance at the mission. As we circled overhead he slid from the roof and rushed to the missionary, shouting, "Master, master, the Savior he come!"

#### OVER BLUP BLUP, A VOLCANIC ISLAND

Back now from exploring that dark Sepik River region of sorcery and cannibalism, our cane collection achieved, we turned our sunburnt faces homeward.

On the morning of August 3 we flew along the north coast to Samarai, a distance of about 950 miles, arriving in the late afternoon. On this trip we passed a strange volcanic island, which rises from the sea between the mouths of the Sepik and Ramu rivers. It is known to natives by the onomatopoetic name of "Blup Blup." It was erupting at the time and showed evidence of two recent lava flows on the landward side.

From Samarai we took off early next morning for Port Moresby. Clouds had not yet mantled the interior mountains. So, to our astonishment, we could now see that a month before, on our blind flight across the island, we had actually hopped over the highest point of the whole central range of mountains! Without suspecting it, we had missed the peaks by only a few hundred feet!

At Port Moresby our final collections of cane were prepared for shipment, and soon we were aboard a convenient tramp on our way to Sydney. As many of the cane cuttings had started to sprout, we

had to improvise a garden on deck. At Sydney, also, as a precaution against loss, a complete duplicate set of our collection was planted in quarantine, in fields provided by the Colonial Sugar Refining Company.

From Sydney we brought our cane to Vancouver, and thence by rail to Washington. At Vancouver, also, our plane was put on wheels and flown over the Rocky Mountains, arriving at our starting point, Washington, D. C., just 200 days after our departure. Incidentally, I later used that same plane for making aerial pictures of Lake Okeechobee and the Everglades in Florida.

#### NEW GUINEA CANES NOW FLOURISHING IN WASHINGTON, D. C.

In quarantine greenhouses at Arlington Farm, across the Potomac from Washington, we planted our cane collection. A fair proportion of the varieties which survived the trip are now vigorous young plants. Those which failed to survive the long trip are being replaced from our intermediate depot of duplicate plants propagated at Sydney.

About 130 distinct varieties of sugar cane, selected with a view to disease-resistance and adaptability to conditions in the Gulf States, resulted from this expedition. It remains now to test these plants under the conditions of commercial cane culture in the South. Superior varieties will eventually be developed by a series of carefully controlled tests and distributed to sugar planters.

It is conceivable that some of these varieties, propagated on a commercial scale, will eventually reach proportions gigantic in comparison with the limited amounts found in their native habitat. Thus we see that races of plants, like races of people, may migrate from one far part of the world to another to multiply and replenish the earth.

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