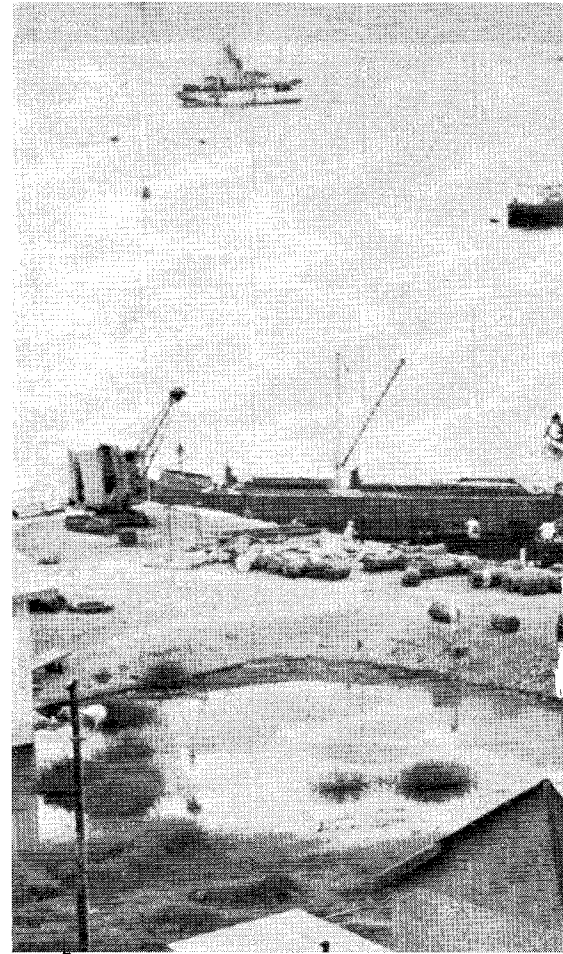


Zambia is a landlocked country more than 600 miles from the sea. But it has a port — little Mpulungu on the shores of Lake Tanganyika. Most of the port's trade is with East Africa, much of it in fish.



Maize meal for market, empty drums for return . . . the wharf at Mpulungu becomes cluttered when the lake steamer, the *Liemba*, is in port.



The port that was born



Captain Anthony Spivey and his wife aboard the *Liemba*. Mrs. Spivey accompanies her husband two or three times a year on his week-long trip.



Story by Tony Howard

Pictures by

Christopher Mills



More than 50 years old, the 800-ton *Liemba* operates a "country bus service" up and down Lake Tanganyika's east coast ports and to Mpulungu.



at a picnic

THE FISHING HAD BEEN GOOD and the champagne had survived the day's trek through the bush without apparent damage. The Governor of Northern Rhodesia sat in a camp chair at the foot of a hill overlooking Lake Tanganyika. He was relaxed and content, and the District Commissioner judged that his moment had arrived. "I'd like to build a port here, sir," he said. The Governor, Sir Herbert Stanley, demurred. The site was excellent . . . a natural sheltered harbour . . . the water was deep to within a few feet of the shore . . . the country needed a port . . . but there was a major snag: the place was too inaccessible. Had the DC forgotten that it had taken them a day's trek through the bush to get there from Abercorn?

The District Commissioner, Mr. J. H. Venning, had prepared his case. "I can build a road to Abercorn for £50," he said. "Well then, you'd better get on with the job," the Governor replied. Ten shillings a mile was regarded as the standard rate for road building in 1925 and Mr. Venning built his road — 27 miles long with "several

bridges" — at the price he had quoted. Three months from the date of the lakeside picnic Zambia's only port, Mpulungu, was open for business.

That was 40 years ago. Today Mpulungu is a small, busy township with a post office, police camp, warehouses, stores and the petrol storage depots of two oil companies. Annual port revenue is £1,500 and customs duties on a variety of goods, mostly from East Africa, amount to £7,000.

Mr. Venning chose his site well. Surrounding hills provide good shelter for the harbour, the grass grows green down to the lakeshore, and, in the cooler months at least, Mpulungu is a pleasant place. When the heat builds up the local people remember that Abercorn, only 26 miles away by the new road, is more than 3,000 feet higher and a good many degrees cooler.

The lake served by the port is the world's second longest — 420 miles — and second deepest — 5,000 feet or more. Its surface area is 12,800 square miles and its only outlet is the Lukuga river at Albertville in the Congo.

When the *Liemba* arrives once every two weeks the little port of Mpulungu springs to life. A few years ago the *Liemba* (extreme left) tied up at a jetty. Now the rising level of the lake forces her to drop anchor hundreds of yards out. Between the *Liemba* and the shore is the petrol barge she tows from Kigoma with supplies for Zambia's Northern Province. Petrol is piped ashore to the depots (right of centre).

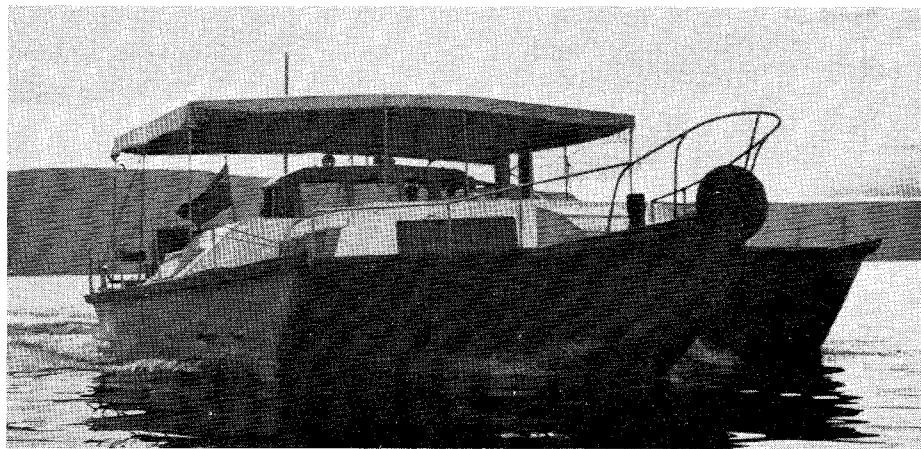
Lake Tanganyika, like the other great lakes of Africa, has been rising steadily in recent years and there has been flood damage at many places along its shores. Villagers have been forced to move homes to the mountain sides, crops have been inundated, and as a result there have been food shortages. The whole nature of the shoreline has changed from gently sloping beaches to sharply rising banks.

A hundred years ago, when David Livingstone visited the Mpulungu area, he recorded seven islands in the lake; today there are only three. Apparently the lake was much higher and covered a far bigger area and the high ground of the present peninsulas could have formed the islands.

Until 1878 the lake had no outlet, but in that year, the alluvial soil blocking its entrance into the Lukuga river was washed away. By 1894, the lake level had dropped 34 feet and the outlet had been scoured down to rock level.

Over the last 60 years, variations in the lake's level have not exceeded nine feet, but the 1938 level threatened port installations

Steeply sloping hills provide natural protection for the little harbour at Mpulungu.



From a sailor's viewpoint the most unusual craft on Lake Tanganyika is the triple-hulled *Triton* belonging to Peter Parton who runs Abercorn's garage and built the 50-foot-long craft on the premises. A powerful marine diesel engine gives *Triton* a range of 400 miles and her three linked hulls provide excellent lateral stability, making her virtually unsinkable. *Triton* cost more than £4,000 and can sleep up to nine passengers. She has a cocktail bar, fridge, galley and VHF radio. Her main task is to provide comfortable and reliable all-weather transport between Mpulungu and the Kasaba Bay game camp 45 miles up the lake. Since she was launched in July, 1962, she has covered more than 25,000 miles.

at Albertville, and dredging and clearing of vegetation at the Lukuga outlet was carried out in 1937-38 and in 1940-41. From 1940 to 1950, the lake level dropped substantially and shippings' access to harbours was endangered.

Low levels continued until 1962, when a new cycle of high levels seemed to be starting. Installations at Albertville and other places were damaged in 1963, and even higher levels were experienced in 1964 despite dredging and clearing of the Lukuga.

In April, 1964, a conference of delegates from Burundi, the Republic of the Congo, Tanzania and Zambia was told that high rainfall and low evaporation were raising

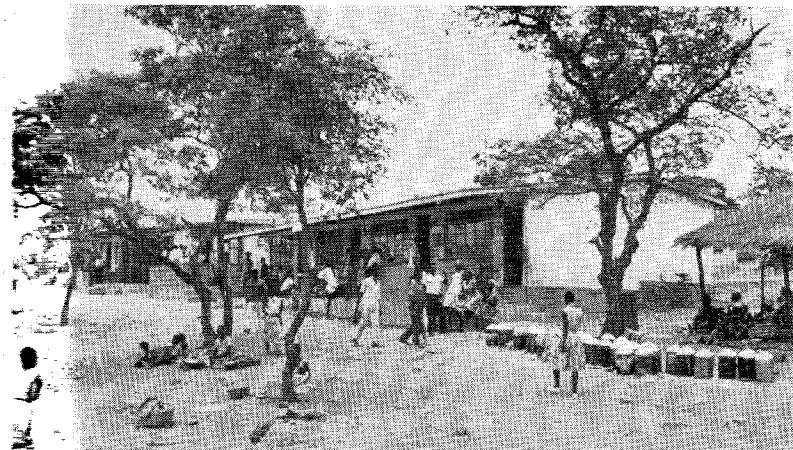
the level of the lake beyond the capacity of the Lukuga to keep pace. The only solution would be a widening and deepening of the river bed by the removal of rock, a process which would need international financing beyond the resources of the countries bordering the lake. It would also be necessary to include protection against consequent flooding of the Lualaba river, of which the Lukuga is a tributary.

Meanwhile, the normal dredging and clearing of the Lukuga ceased in March, 1964.

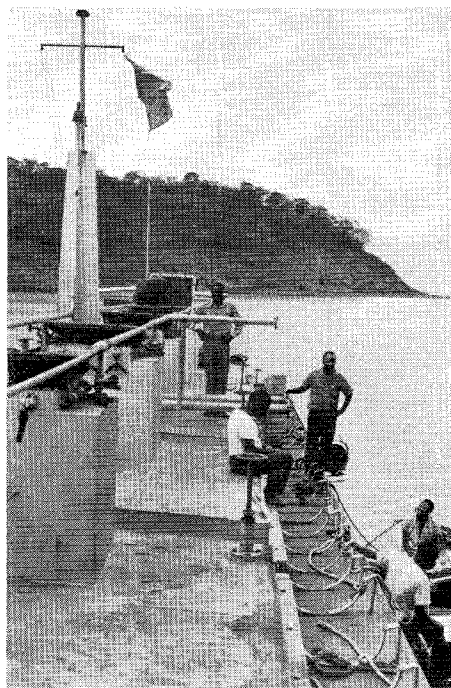
Between February, 1958, and February, 1965, the lake has risen 7.4 feet at Mpulungu. One of the two commercial fisheries has had to move three times and jetties which

gave years of service are now under water. Present indications are that the lake will go on rising. If the level goes up another ten feet, port installations will be flooded; if it rises at the present rate for another three years it will flood the commercial fisheries, police and customs posts.

Last year the Shell Company's petrol depot was two feet under water although the tanks and pumps, above the water line, were not affected. The oil store had to be moved and for a time some facilities were shared with the rival Mobil company whose depot is on slightly higher ground. Shell is seriously considering moving the whole depot to ground between 11 and 14 feet higher but a final decision depends on



Above: A few stores, a police post, customs and post offices, two commercial fisheries . . . Mpulungu consists of these and little else.



Petrol from the Middle East, shipped to Dar es Salaam, and railed to Lake Tanganyika, has been unloaded from a 45,000-gallon barge (left). Now the red flag flies from the Shell depot (right) to signify that the storage tanks are full.



Government plans for improving port facilities.

Lake Tanganyika rises — and the other African lakes rise too. Lakes Victoria, Nyanza, Edward and Albert are going up. Lake Nyasa has reached its highest point in more than 40 years; Lake Rukwa has held water throughout the year for the first time in many years.

Climatic changes are at least partly to blame but a theory which has gained some support is that the bottom of the Great Rift Valley has lifted. Most of the lakes lie in the two branches of the valley and, it is argued, upward earth movements could well account for the rise in water levels.

While the experts continue to sift the evidence and the met. men talk about increased sun spot activity as a possible cause of heavier rainfall, the little port of Mpulungu gains increasing importance year by year as a receiving and distributing centre for the northern areas of Zambia.

The township's two petrol depots were established to help improve the pattern of supply in the Northern and Luapula

provinces. Petrol from the Middle East is transferred from tanker to train at Dar es Salaam and from train to barge towed by the lake steamer, the *Liemba*, at the Tanzanian lake port of Kigoma. Since the Mpulungu depots were opened the costly, wasteful and inconvenient system of returnable sealed drums has been discontinued, the petrol price has dropped, and there is a better chance of ensuring continuity of supply. The 800-ton *Liemba* arrives once a fortnight with a petrol barge in tow containing 30,000 or 45,000 gallons. Central African Road Services tankers distribute the petrol throughout the northern part of the country.

Lunch aboard

The arrival of the *Liemba* at Mpulungu is a social, as well as a business, affair; lunch is served aboard and the bar is open to visitors. The ship leaves Kigoma every other Thursday and calls at eight small ports before dropping anchor in Mpulungu

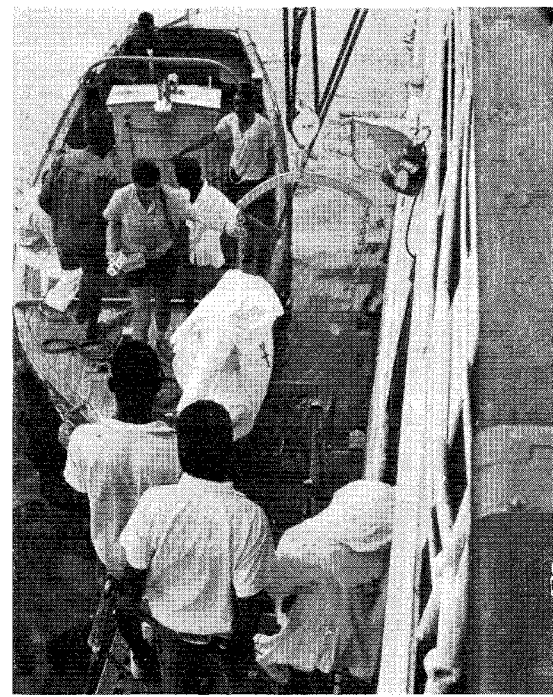
harbour on Sunday morning. Small boats in great variety head out from the shore and the "taxi ride" of several hundred yards costs threepence a time.

When the *Liemba* is in port a miniature market springs up on the fringe of the harbour installations. Sticks of sugar cane at threepence and sixpence, mangoes, bananas and maize meal are on sale alongside piles of kapenta, the small fresh-water herring caught in the lake. The smell of fish and various engine fuels overlays a compound of less definable odours. Everywhere there is colour, movement and noise and in the background the procession of little boats to the *Liemba* moves backwards and forwards.

"We operate a country bus service," says the ship's captain, Yorkshire-born Tony Spivey. "Cargoes are made up of small amounts of all sorts of things. We carry a lot of fish, of course, but in addition there may be a couple of sheets of corrugated iron, sugar, flour, cotton piece goods and empty bags for fish. The petrol barge we tow cuts our speed from 8 knots to 5 but it



Heavy paddles propel the plank boats plying backwards and forwards between ship and shore. Taxi fare for the round trip is a few coppers.



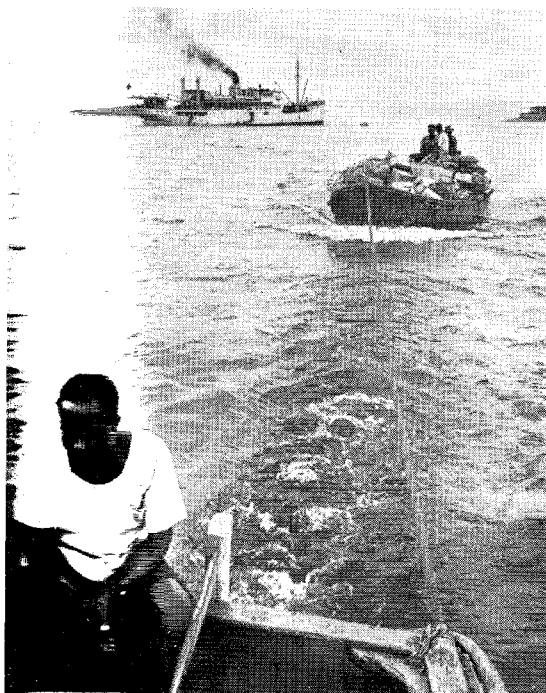
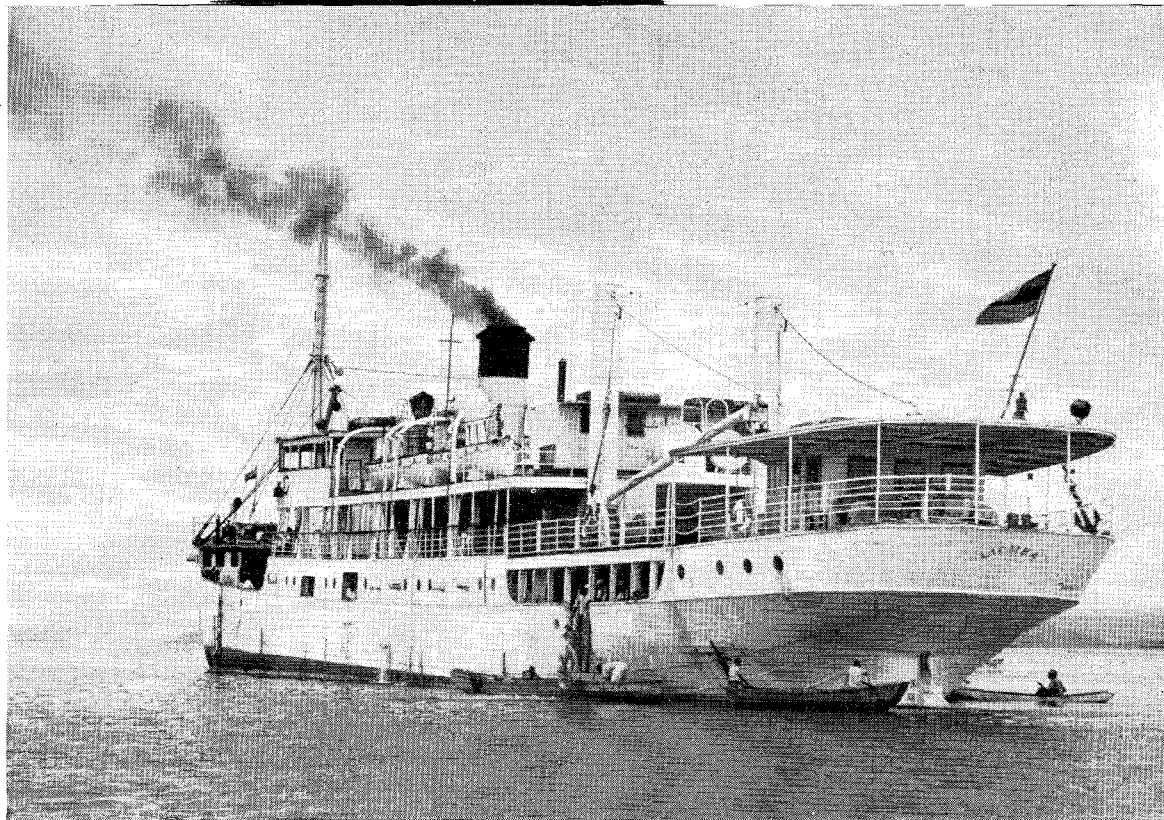
White Sisters off to Tanzania are followed aboard by a young German tourist homeward bound after a tour of Southern Africa.

Goods for market are towed ashore by motor boat.

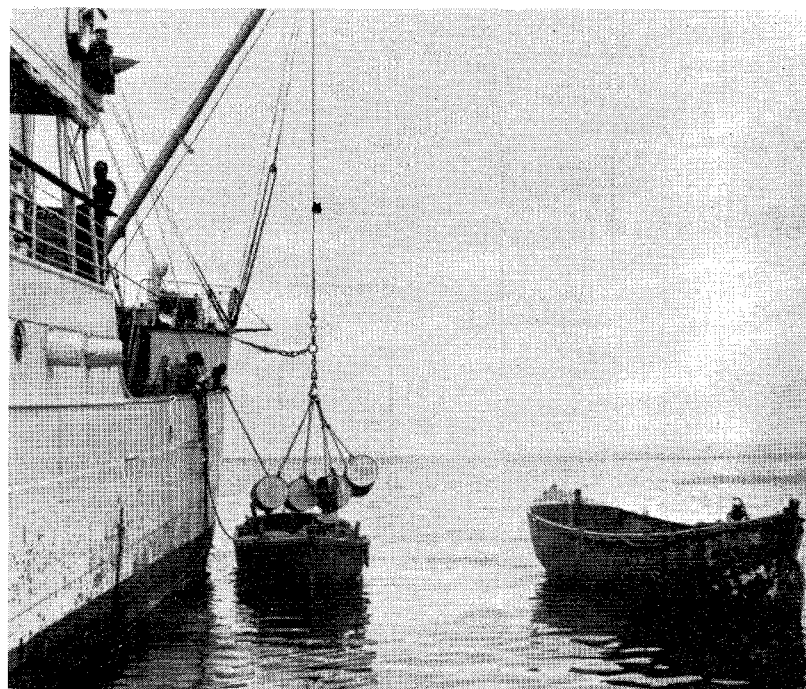
represents our biggest source of income."

The *Liemba* carries passengers too — 18 first class, 20 second class, and up to 300 third class. "We reckon it's just about the cheapest public transport in the world," says Captain Spivey. "A third class passenger can travel 100 miles for about 9s. The 700-mile round trip costs a first class passenger £7 plus 23s. a day for food." The passenger list is cosmopolitan: there are Moslem Asian traders who travel first class and take their own cook; Arabs from East Africa, some with Arab women of pure blood, whiter than Europeans; tourists with rucksacks; White Sisters whose missionary work is not bounded by frontiers; and Tanzanians taking their

For years she lay on the bottom of the lake, scuttled by her German masters. Winston Churchill ordered her to be salvaged more than 40 years ago. Today the *Liemba* remains one of the most familiar sights on Lake Tanganyika.



Drums of motor oil unloaded from the *Liemba*. Petrol, too, was formerly delivered in sealed drums. Now the petrol barge, towed behind the ship, saves time and money.



gent bananas and sugar cane to market.

The *Liemba* began its life more than 50 years ago as the *Graf von Goetzen*, named after an explorer, Count von Goetzen, who set out to cross Africa towards the end of the last century with 600 porters and two Indian elephants.

Shipped in pieces

Built in Germany at a cost of £20,000, she was bought by the East African Railway Company in Berlin, shipped from Hamburg to Dar es Salaam in pieces and then hauled to Kigoma where the consider-

able task of assembling her was tackled by 20 German ship-builders. After her trials she was fitted with a 4.1 in. gun from the cruiser *Konigsberg* which had been disabled in the Rufiji river.

The *Goetzen's* main task was to transport troops from the railhead at Kigoma to Bismarckburg — now Kasanga — as reinforcements for the East African campaign. And her first voyage was nearly her last. With 700 soldiers aboard she was caught in a southerly gale. Her steering gear failed and she rolled so heavily that it was feared she would capsize. Fighting against the howling wind, she was almost driven ashore before giving up the battle and returning to Kigoma.

With a few smaller vessels the *Goetzen* controlled Lake Tanganyika and the Germans were able to conduct constant raids on the British-held coast. Then the British planned and carried out a brilliant little naval action. In July, 1915, a tiny expeditionary force, led by Commander G. Spicer Simson RN, assembled at the Cape together with two 4½-ton motor launches bearing the unlikely names of *Mimi* and *Toutou*. Each was armed with a three-pounder gun and was able to outsail and outclass the three or four bigger German vessels on the lake.

The boats were taken to the Belgian Congo by rail, and then through forest tracks for more than 150 miles, mounted

on specially-made wagons drawn by traction engines. They crossed the most difficult country imaginable, including a range of mountains 6,000 feet above sea level, were taken down the Lualaba to Kabalo, and then railed to the lake.

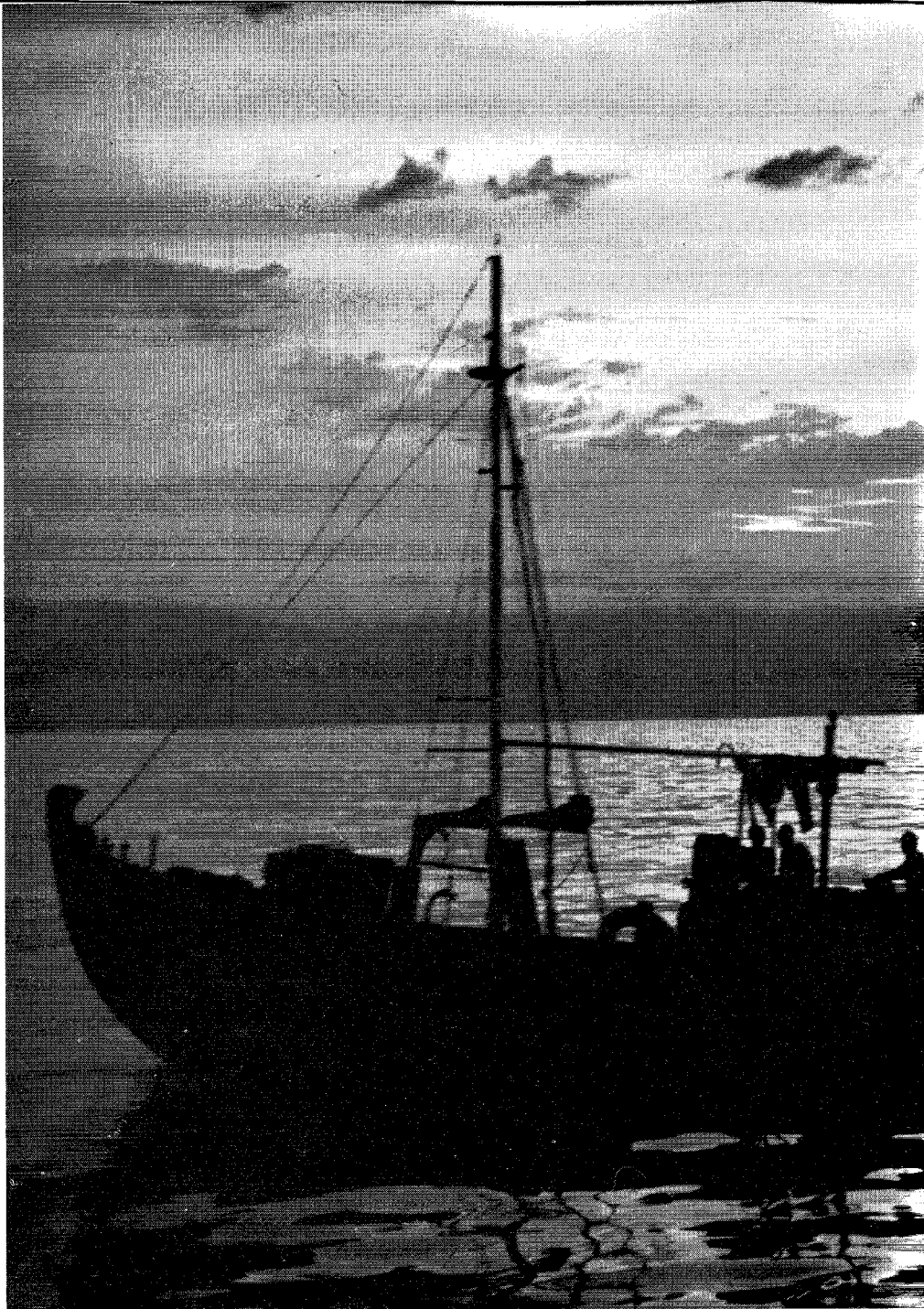
Mimi and *Toutou*, as fast as their Gallic names, captured a 53-ton German gunboat, the *Kingani*, which was promptly turned into a British warship and given the name *Fifi*. Then the *Hedwig von Wissmann*, three times as big as the *Kingani*, was sunk. The much bigger *Graf von Goetzen* remained — until a Belgian seaplane bombed and damaged her. Rather than let her be captured the Germans scuttled her in shallow water and for the rest of the war she lay on the bed of the lake near Kigoma, only her masts and funnel top showing above the surface.

After the war the Belgians administered the Kigoma area. They managed to lift the *Goetzen* sufficiently clear of the water for the still submerged vessel to be moved into Kigoma bay, where she again rested on the bottom. There she lay when Britain took over the Kigoma area in March, 1921. Winston Churchill was First Lord of the Admiralty and it was on his orders that Britain bought the wreck for £4,000. Salvage work cost £16,000 and reconditioning nearly £30,000, far more than the cost of a new ship. The engines, which had lain under water for more than five years, were reported to be in excellent condition and are still in use today.

The ship was handed over to Tanganyika Railways and in 1927 was christened the *Liemba*, the name by which the lake was known when Livingstone first reached it. The Governor came up from Dar es Salaam for her trial run and the band of the Kenya African Rifles played during an eight course lunch. The *Liemba* began a regular service to the east coast lake ports and Mpulungu, interrupted in 1952 for major alterations and for new boilers to be fitted.

Lawrence G. Green writes in his *Great North Road* that the *Liemba's* name perpetuates the old name for the lake which was itself named after one of its strange phenomena: the jellyfish, about the size of a florin, which live here and in no other great lake. "All the lakes you have seen are different from Liemba," an old African once told a zoologist, in describing the tiny, octopus-like jellyfish swimming near the surface. "They are blind lakes, asleep. In the rain Liemba (the lake) sleeps, but when the night wind dies before dawn, Tanganyika awakes to look at the moon and the stars, and the lake is then full of eyes."

Today, more than 50 years since she was assembled at Kigoma the *Liemba* sails on, seemingly impervious to the passage of time. She is older than Mpulungu itself . . . and a fascinating surprise for the visitor who comes upon her unexpectedly, thumping her way across the lake 700 miles from the sea.



The night fishermen of Lake Tanganyika



SERENELY SMOOTH, Lake Tanganyika stretched into the gathering dusk. A sky shot with gold laid a path of hammered bronze across the water and the traditional curved prow of a Greek fishing boat etched into it an alien silhouette.

Peter Parton, sailing the triple-hulled *Triton* on a parallel course, surveyed the scene from his wheelhouse. "It isn't always like this," he said. "A storm can come up quickly and the waves can go from eight to ten feet."

The Greek boat — the diesel-engined *Taxiarchis*, mother ship of a fishing unit — throbbed past the *Triton* into the gloom. She left a token of her passing: a one-man dinghy dominated by two brightly burning pressure lamps, each of 2,000 candle power.

Earlier we had seen the *Taxiarchis* sail from Mpulungu harbour with four such boats towed in line astern. Six miles out the mother ship had begun to drop her babies, one by one, at intervals of a mile, so that they formed the four corners of a square or points on the perimeter of a circle. Each boat had a pair of powerful pressure lamps fitted at the stern and all the way from Mpulungu the one-man crews had been hard at work pumping so that once in place their lamps would light quickly and burn brightly through the night. Like moths unable to resist the light the tiny fresh-water herring of Lake Tanganyika — dagaa — would soon swarm round the boats and, in their masses, would attract the bigger fish, the predators from the deep. The night's fishing would be under way.

In the harbour at Mpulungu, with her tough-looking African crew demanding that we pay each of them a pound as a photographic modelling fee, the *Taxiarchis* had seemed very much a part of the tropical scene. Here, in the thickening darkness, listening to Peter Parton explaining quietly that ring net fishing had been traditional Greek practice over the centuries, we could almost imagine that we were gazing across Homer's wine-dark sea to the fading coastline of Crete or Rhodes or the Dodecanese.

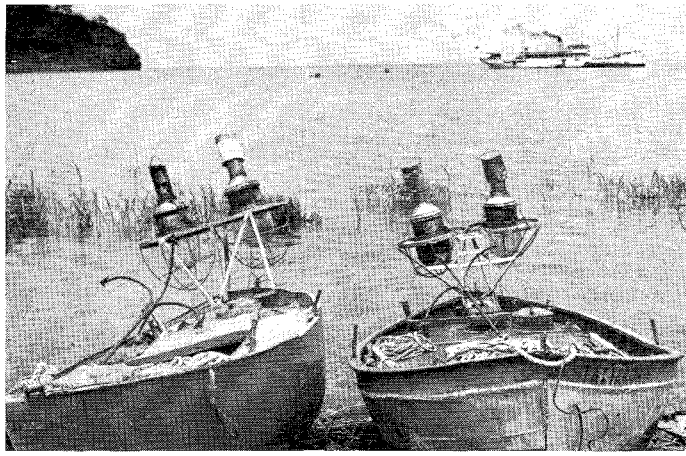
Taxiarchis was changing course again, heading for the lakeshore to collect her net boat and bring it to the centre of the geometric pattern she had formed with her lamp boats. The great ring net, which had cost £10,000, would be cast in a circle around the lights. Heavy corking holds up the top of the net and a purse near the bottom has a draw-string effect; once in the net, the fish whether they are the tiny dagaa, lake salmon, or Nile perch running up to 100 lb. or more, cannot escape.

(continued on next page)

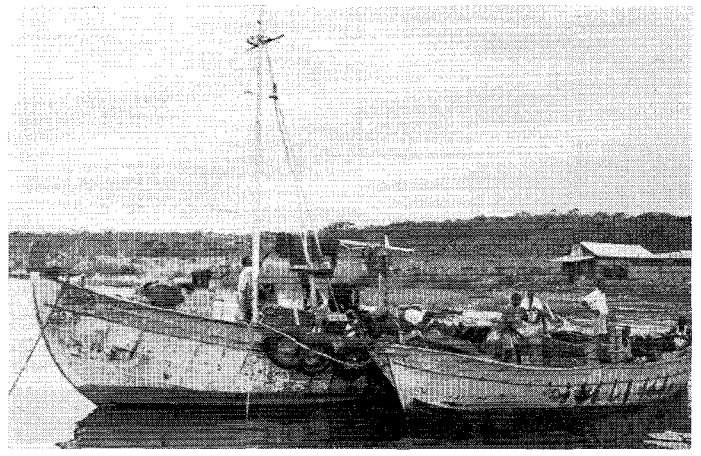
The *Taxiarchis*, a Greek fishing boat, drops a one-man lamp boat six miles out from the lakeshore. The lamps will attract the tiny fresh-water herring — dagaa — and they in turn will draw the larger predators from the deeper levels. When four lamp boats are in position a huge net will be cast between them and the night's fishing will begin.



Heading out from Mpulungu the *Taxiarchis* tows her lamp boats. Two of the little boats are not shown. When the skipper decides he has reached his fishing area he will drop the boats at points up to a mile apart so that they form the corners of a square.



Above: The lamp boats are beached during the day. In late afternoon they will be towed out by the mother boat and positioned for the night's fishing. **Above right:** Alongside the *Taxiarchis* is the net boat which will help carry back the night's catch.



But first the *Taxiarchis* would wait. The fish cannot be hurried. The dagga would swim near the surface. The white incandescence hanging over the water at the back of the lamp boats would draw them in their myriads . . . tiny fish, three or four inches long, offering themselves by the ton, first to the predators and then to the fishermen. All night long the fishing would go on and the sun would be well above the horizon when *Taxiarchis* returned to port. If the captain had been lucky in his choice of fishing place the catch might run up to ten tons — one night it was 16 tons — but more likely it would be three or four tons. At the fishery the catch would be sorted. Most would be hung on racks to dry; the remainder would go into the deep freeze. Most of the little dagaa would be dried and in the process the fish would change its name to kapenta. (Large quantities are sold in 1 lb. packets and are very popular on the Copperbelt.) The fish traders would arrive from all over the northern part of the country and from the Copperbelt and the fish would be on its way to market.

The great ring net lies on the deck of the *Taxiarchis* as she heads out to her fishing place. The crew relax, eat mangoes or bananas, or just sit watching the manoeuvres of the *Triton* as photographer Christopher Mills calls his requests to skipper Peter Parton.





The Greeks are one of two commercial fishing firms established at Mpulungu. Although the dagaa season lasts only from July to November, and night fishing with lamps is only possible when there is no full moon, the commercial firms fish throughout the year, turning their attention mainly to Nile perch and lake salmon when the little fish are absent. The dagaa season is so short because the fish breed annually and are virtually wiped out each year by the predators.

In addition to the commercial firms there are an estimated 680 fishermen defined as owners of boats or gear. They employ 1,322 crew and use 668 plank boats and 48 canoes; a further 24 boats fitted with outboard motors are used mainly for transporting fish from lakeshore fishing camps to trading centres.

The peasant fishermen earn an average of £80 in the four-month dagaa season and spend the rest of the year in working their lakeshore gardens. Their plank boats cost about £30 each, a scoop net is £7 and a Tilley lamp a further £3 10s. — so that equipment can cost about half a year's earnings. But even though their season is so short, and their initial outlay so high, the fishermen often fail to take advantage of their opportunities. The number of "boat nights" recorded by the Fisheries Department in 1964 was only about half the maximum possible. With a keener attitude, and improved methods of drying the fish, average earnings could rise to as much as £300.

Equipment and marketing improve

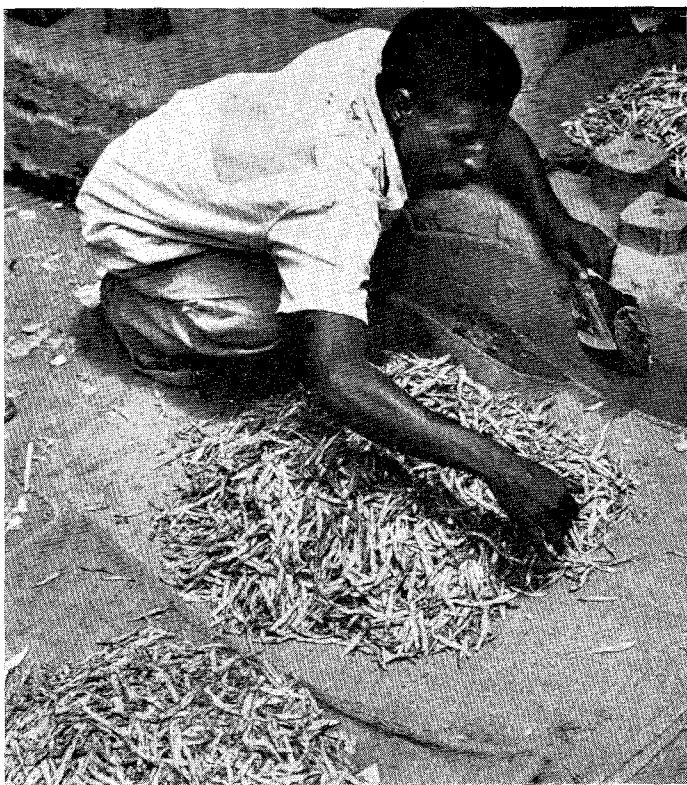
The Fisheries Department has had some success in persuading the fishermen to use better equipment and there has been a ready acceptance of advice. Marketing, too, has improved with the formation of marketing unions and co-operatives. Paradoxically, deep water fishing, especially with the ring net, is believed to have increased the lake's dagaa potential by reducing the number of predators. Preliminary estimates for last year show that the Zambian waters of the lake yielded 7,386 short tons of freshweight, of which 6,573 tons were dagaa; this was an increase over the previous year but was still far short of market requirements.

The Fisheries Department is constantly striving for a greater increase and has an allocation of £7,000 to try out new equipment. Battery gill nets, set on the bottom of the lake at a depth of 120 metres to yield heavy catches, may be one answer, and there is a move to increase the size of the "fishing unit" so that it becomes a commercial proposition. This presupposes larger craft and a twin-masted catamaran is under construction as a demonstration vessel.

In spite of the increase in catches from 1963 to 1964 and an increase in the amount of fish caught in the Mweru wa' Ntupa scheme (making a total of 8,219 tons for the northern part of the country) fish imported from Tanzania totalled almost double this amount. Much of it travels through Zambia on its way to Rhodesia.

With more effort Zambian fishermen could provide more food for their fellow countrymen and claim a bigger share of an export market.

Above left: The complete fishing unit — mother boat, net boat and four lamp boats. **Above:** Before the long tow begins the boats must be strung out so that they can be pulled in line astern.



Above: The end product — dried dagaa or kapenta, as it is better known. The fish is popular throughout the country. **Below:** Fish by the thousand hang on wire fences to dry at Pedeta Fisheries.

