

No Fishhooks

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The village elder Ubadu had a problem - his son's in-laws were badgering him again. They want him to fix their hammocks, or catch them a monkey, or some other thing that isn't really his job. But he loves his wife, Ama, and life deep in the jungle with the rest of their village, and their tribe along the great river. They live in peace, when the Yamo over on the next river aren't bothering them.

Recently, though, Ubadu's nemesis-by-marriage Umeno had another kind of complaint. "There aren't any more of those nice shiny fishhooks, and it's harder to catch fish without them."

Umeno took his complaint to the village council, and everybody agreed that they would like to have fishhooks like they used to have. But the traders hadn't visited for many years, some of the council members observed. No one knew why. It wasn't such a big deal, they didn't really need what the traders had to offer anyway, mostly bits of decorations made of shiny stuff. But it would be good to have fishhooks again. What to do?

One of the elders suggested that "If the traders aren't coming to us, maybe one of us should go to them."

Everyone knew that they came from a long journey by boat downriver, but no one had ever been there before except Ubadu. He had lived with the traders for a year when he was young, and even though that was a very long time ago he thought he might still remember enough Portuguese to find out about the fishhooks.

The whole village helped to equip Ubadu's canoe with many days' provisions, some nuts and pelts as trade goods, and even a broken fishhook that someone found in his hut, brown with age. One of the younger men, also from the ubu clan, went along to

help with the canoe and with any unfriendly neighbors whose territory they would have to pass through. But it was Ubadu everyone was counting on. Even Umeno gave him a cut of magic-weed to help him on his way. They would stop tomorrow at the last of the tribe's villages, then go off to the unknown.

So it was that Ubadu and Ubeebu set off on their great journey. They stayed in the middle of the river as much as possible, and stopped as little as possible, to avoid any confrontation with the tribes that inhabited the unknown riverbanks. When they stopped they made sure there were no others nearby. Luckily there were no confrontations. As they paddled, Ubadu taught his companion a few words and phrases of Portuguese, but he didn't get very far.

Day by day the river got wider, and finally joined a really immense river, so wide that the travelers could hardly see the other side. Ubadu said that the traders' name for the great river was 'Amazon', but it didn't mean anything to Ubeebu. They noted the landmarks and the currents so that they could find their way home again. And from there it took several more days, through country that was frighteningly open and lacked even trees in many places, before they found what they were looking for.

Late one afternoon the canoe arrived at a place where a line of posts extended out into the river, along with wooden remains of boats. Their size and shape told Ubadu that these had been the boats of the traders. Ubeebu never knew there were so many of them; only one at a time had ever visited his village. The boats were just wooden frames now, filled with water and half-submerged. Ubadu and Ubeebu expertly beached their canoe, and with some trepidation began exploring the shore. Ubeebu found the place very strange. There were fragments of buildings made of wood and a kind of stone that was carved into the shapes of flat walls. Mostly there were platforms, each made of one great stone, with bits and pieces of wood and browned metal sticking out.

Finally Ubeebu found what seemed like several big huts, but all squared off, not rounded like proper huts, made of graying pieces of old wood. Warily the two travelers circled one hut several

times; a whiff of strange-smelling smoke told them there were probably people inside. Ubeebu courageously peeped through a square hole in one wall, and saw a man and a woman inside. After a few minutes they made enough noise that the people would know someone was about, and indeed the man appeared at the hole. Ubeebu was apprehensive, but Ubadu said oi, and held up some nuts as a peace offering, as was their tribe's custom. Ubeebu hesitantly echoed the greeting.

The woman opened up a hole in the wall and motioned the two to come in. The man and woman took the nuts and ate them immediately, as was not their tribe's custom, while Ubadu explained in his best, halting Portuguese why they were there. He showed them the anzol, the rusted fishhook. The man said he knew nothing of where the fishhooks came from or how to get them, but he would ask his grandfather about it, assuring them that if anyone would know about the fishhooks, he would. He left the hut, and a few minutes later came back leading a wiry old man, who smiled when he recognized the tattoos of the tribe. He had been a trader once, in his youth.

Ubadu explained again why they had come, that they would like to get some of the fishhooks that the traders had once brought to their village. The old man introduced himself, Jao Silveira; he explained to his neto Jorge, and his granddaughter-in-law Maria where they had come from, and how far it was for them. Jao asked Maria to make some tea. As she busied herself at the fire of small sticks, grumbling about in-laws, he told the two travelers what he knew.

"A long time ago there were a lot of houses here. We had boats and trucks, and it was easy to get to the outside world. In my grandfather's time they measured distance in the time it took to get somewhere, not in the cost of the trip. Farmers grew great quantities of food in the fields downriver. They shipped grain and sugar and cotton to cities far away where many people lived, and got metal pots, furniture, lots of other goods, and yes, even fishhooks in return. They weren't rich, but they were comfortable, and every year the town got a little bigger. The trade with the tribes upriver was only a small business compared to all the other trading that was going on here.

"Then something happened. It started gradually, hardly anyone noticed, but even in my grandfather's time fuel started getting more expensive, until people could hardly afford to keep their boats and trucks running. Then everything else started getting more expensive too. They found out that oil runs everything; it was getting hard to find, and there simply wasn't as much of it as there had been before."

"I remember oil – nasty stuff, smelly and slimy," Ubadu interrupted.

"Right, but it turned out that it was oil that made everything else work. We didn't realize that until it was too late. Our experts said not to worry and talked about 'resource substitution' – if you run out of one thing, another will come along to take its place. They didn't notice that the substitution always involved larger amounts of cheap oil. When the world ran out of good iron ore people learned to make iron from poor ore, but they needed huge quantities of cheap oil to make it work. Finally there just wasn't enough oil to keep our boats and our trucks running. We couldn't get fuel, we couldn't get parts for our engines, we couldn't get anything that was made in a factory. All of those things depended on oil. There was still some around, but we couldn't get enough of it anymore to make things run."

Ubadu seemed unconvinced. "When I was here everyone was complaining that fuel was hard to get, and expensive when you could get it. Why didn't you just use something else instead? When we can't get one kind of fruit, we collect another. There are hundreds of different fruits in the forest, every one with a different harvest. We would never be so foolish as to rely on only one."

"There wasn't anything else, but we didn't know it. One barrel of oil had so much energy that it could do the work you can get from twelve men in a year. And between my grandfather's youth and my father's youth, you could buy that oil for a few weeks' wages. It was an incredible bargain. We all came to depend on it, but of course since it came out of the ground there was only so much, like a giant worldwide underground gas tank that gradually went dry. The oil fields got smaller and smaller, and

the oil got harder and harder to pump out, until finally it took as much energy to get the oil out as we got from burning it. At that point the pumping stopped, that was the end.

Ubadu was comprehending only part of this, and Ubeebu of course understood nothing, but he remained quiet as is his tribe's custom in such situations. Jorge objected, though. "What about the other fuels, like coal and gas?"

"Well, Jorge, there were other fuels, but as one fuel got scarce people turned to another. When oil got expensive, people made electricity from natural gas, or coal. The end result was that we ran out of all our fuels at about the same time."

"But we used to grow fuel, you told me once."

"Yes, we did, but it wasn't enough, even though we had great fields growing sugar to make into fuel. The great tragedy was that after we started to run short of energy, the land couldn't support as many people, but every year this country had a million more people. It couldn't produce all the houses, and roads, and schools, and farmland, and everything else a million people need, when the energy base was declining."

Ubadu asked, "How much is a million? I don't know that word."

"Um, imagine a blanket covered with nuts, ten nuts in a row, and ten rows. That's a hundred nuts."

"Ok."

"Now imagine that each of those nuts becomes a hundred nuts. Then, each of those new nuts becomes a hundred nuts. That's a million."

"It's hard to even imagine such a number." Ubadu tried to explain to Ubeebu how many people that was, but Ubeebu couldn't comprehend it. "Why didn't the extra people move to other places?", Ubadu asked.

"There weren't any other places," Jao went on. "In the whole world the population was growing by seventy million people

every year, long into the decline in oil. That's why the decline was so much faster than the rise of industries based on fuels that came out of the ground. The rise took about three human lifetimes, then another lifetime at the peak, and another to go from the peak of oil production to the point where there was hardly any available."

Jorge persisted, "So what finally happened, how did everything break down?"

Jao explained that part of the breakdown was physical – there wasn't enough energy. Countries ran out of oil one by one, until only a few countries had enough to export. At one time the United States, the big country in the north, was the biggest exporter, but when their own needs became greater than the diminishing amount they produced, they abruptly stopped exporting, and a few years later they became the biggest importer. Then over the span of only a few years all the other countries stopped exporting until only one was left, far away over the sea. Their product was so expensive that only the militaries of the world could afford it, and no one dared to tell the generals that they shouldn't waste the last bits of high-quality energy. When that last country stopped exporting, no one could buy oil. Even the countries that pumped some for themselves discovered that, like the rest of us, they couldn't buy things they needed, like metals that are made only with huge inputs of fossil fuels. They couldn't buy vehicles, because the factories that made them were in countries that didn't have enough fuel to supply their factories with metal and glass and plastic, and keep them running.

By now Ubadu got the gist of what Jao was saying. Jorge was fascinated and horrified. "Granddad, I had no idea about all this. You never told us. Tell us the rest of the story, how everything broke down."

Jao continued with a sigh. It wasn't that no one tried to maintain their civilization. People turned to wood for fuel all over the world, so that in just a few years all the accessible forests were decimated. And they tried water power, opening up mills that had been abandoned for centuries, but the population was so big

that it hardly made a dent. They used wind power to pump water and make a little electricity, but eventually there wasn't enough energy to make the steel and concrete they needed to erect windmills, and still make all the other things that people needed. The last windmills were made mostly of wood, and not very effective. Electricity supplies failed, then water supplies. It was like the industrial revolution running in reverse, and eventually the population boom of the last centuries ran in reverse too.

The other part of the breakdown was social, and it was worse, Jao thought. It was shocking to discover that without huge amounts of fossil fuel, the world couldn't grow and ship enough crops to feed everyone. Most of the energy in people's food came from oil, not sunlight. The fossil fuels made fertilizer; they ran the tractors and the harvesters and the processing factories and the delivery trucks. After the water and power failed, the big cities became uninhabitable. Markets in the cities gradually emptied out, pushing desperate families out to the countryside, where they tried farming themselves. They squatted on the big sugar plantations that had been growing fuel. It was illegal, but there were so many people that the government couldn't stop them, especially without enough fuel to run its own cars and trucks. It was mostly in vain, though. The refugees had to use their own physical labor, and didn't know how to farm anyway, so most of them starved. Similar things happened in most other parts of the world.

"Even here?", Ubadu asked.

"Yes, even here. The forest used to come almost to the edge of town, just up the river. Now you saw how far you had to paddle through open country to get here. But it didn't help, people ruined the land and starved anyway. Then the plagues came, great waves of sicknesses that no one could stop because everyone was weakened, and to make medicines or run hospitals you needed fuel and economic networks that no longer existed. Governments broke down because they didn't have the resources to maintain social order, or even to collect taxes. There was the period of criminal gangs, stealing anything they could get from anyone they could find, but eventually there was nothing left to steal. I even heard that in some places people began to eat each

other.”

Ubadu winced. “Ugh, that’s horrible. I can’t imagine such a thing.” He hadn’t understood much of what Jao was saying, but he understood that. He explained to Ubeebu, who was also revolted.

Jorge objected, “Why didn’t people just find new ways to get energy?”

“There just wasn’t enough. And the economic system that might have built more couldn’t handle it, because just at that time the world’s economies started shrinking, with no end in sight.”

Ubadu was mystified. “Why didn’t they just build what they needed anyway?”

With a sadness from long experience, Jao answered, “Almost the whole world used an economic system called capitalism. Basically it meant that if you want to make something, you need tools and materials to do it; other people provide that, they invest in your project. They do it because they expect the tools to produce something of more value than what was there before, and the people making the new thing could pay back the people who invested, and give them more than they originally put in, and have some left over for themselves. So the whole scheme depended on growth, and it only functioned when things were growing. It’s called a ‘pyramid scheme’, and it worked for more than two centuries. But when things started shrinking, no one wanted to invest, because there was less of everything every year. People knew they would never get their investment back. So the whole system ground to a halt.”

Jorge pressed, “Why didn’t they plan ahead, fix the system, and make the things they need to get over the crisis?”

“That’s a tough one. I think the main reason is that no one knew what to do. They didn’t know any another system, and they probably couldn’t have changed if they did. It’s just a fact of life that most people don’t look very far into the future, and in the short term the only thing they could do was to conserve, to make do with a little less. But that goes only so far; eventually you

can't survive anymore."

Maria served the tea. As they drank, she asked, "Weren't there places where people had always been self-sufficient? They didn't need all those industrial things."

"Actually there's a sad story about some religious groups in the United States, and one here in Brazil," Jao continued. "The groups were called Amish and Mennonite. They thought they were self-sufficient, but they didn't realize how much they depended on the industrial world for things like metal plows, twine, a hundred little things they couldn't do without. They also didn't realize that their system only worked because they had lots of children. Most of them migrated to the outside world, so the farmers got the free child labor but didn't have to support the adults. When things got bad outside the children didn't leave, the populations tripled in a single generation, and their system struggled. Then came the plagues and the criminal gangs. The gangs stole their animals and ate them. After that communication broke down, so I don't know what became of them in the end. It's just like the energy situation, where people substituted and made do as long as they could, eating up their reserves. They put off the collapse as long as they could, but that just make the end even more abrupt – and ugly."

Even though Ubadu was still having a hard time following all of this, he got the general idea, and he was skeptical. "So how come you survived, when most other people didn't?"

Jorge knew that part of the story. "My granddad is a very smart guy. When he was living in the big city he knew about what was happening all over the world, and he saw the collapse coming before most other people did. He found a spot in the hills to the west of the jungle that was very isolated, but it had water and a small patch of good farmland. He learned to farm, in the years before the collapse, and when things inevitably got bad he moved us there. Actually we paddled and sailed up the great river, past where your river branches off, and far, far upstream. Then we walked for three days. It's one of the first things I remember. We struggled and sacrificed and nearly starved, but we were protected from the plagues and the criminal gangs.

Some people tried to live in the jungles, but they didn't know enough about how to live there, so they didn't last long. Eventually our bit of farmland was exhausted, and of course we couldn't get fertilizer, so we moved back here after people abandoned the town, and there's more land here. Life is hard, things are sparse, but we survive."

It was getting late as they sat and talked in the darkness, a patch of bluish moonlight illuminating a square of the floor. Jorge invited his guests to stay the night, so Ubadu and Ubeebu rolled out their sleeping mats on the floor while Jorge's family retired to their bedroom. The next morning they traded some pelts for a breakfast of fruits and grains, and said adeus. They noticed that Maria was pregnant, and wished her well with the future bébé.

There was no hope of getting any fishhooks, so the two travelers looked around the ruined town. In several hours they managed to scavenge two abandoned metal pots, before they returned to their canoe. The upstream journey was harder and longer, made more difficult by the knowledge of what had happened to the world, of the billions who had perished. But in the end to them it was all a fantastic story, a fiction about people and events on a scale they couldn't comprehend. The situation of Jao's family was real enough, though, and they hoped the small family would make it. Back in their village at last, Ubadu and Ubeebu produced the two pots and explained what had happened to the world and why there were no fishhooks. The story was even more fantastic and incomprehensible to people who had never been downriver, had never left the jungle, knew no other way of life. The two travelers told their story many times, over evening gatherings and feasts, each time to rapt attention but little understanding. Even Ubadu had no idea how much a billion was, just that it was a lot more than a million.

Things weren't bad in the village, though. While the two from the ubu clan were away one of the clever young men had figured out how to make a serviceable fishhook out of a monkey vertebra, breaking off a few pieces here and there. It was more brittle than the old metal hooks, but it could be replaced with a few minutes' work. There was good fish again.

The unintended consequence of this development is that Umeno is pestering Ubadu more than ever to catch him a monkey. In-laws!

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