

He Brings Hope to Africa's Farmers

BY NORMAN MYERS



NOT a wisp of grass showed anywhere. Not an insect crept among the rocks. How could any place be so barren, I wondered? I was standing on fossil-coral rubble left in an abandoned quarry near Mombasa, on the coast of Kenya. It was a man-made desert, created after the Bamburi Portland Cement Company had dug out 30 feet of limestone.

Yet after a five-minute walk further into the site, I found myself in a luxuriant scene. Trees towered all around. Lush grass proliferated underfoot. Insects swarmed, and

In a lifeless Kenyan quarry, René Haller has performed a green miracle



birds flitted about. Up ahead fish bunched in pools and crocodiles sunned themselves. Beyond, cattle, sheep and goats grazed with herds of semi-domesticated antelope.

"It's surprising what nature can do when you lend a helping hand," explained my companion, 54-year-old Swiss agronomist René Haller. "The trick is to get a few plants started, then let nature get on with it, Africa-style."

A self-trained specialist in restoring man-blighted lands, Haller is manager of Baobab Farm, a subsidiary of Bamburi Cement Company set up to reclaim the quarry. Not only

Haller's revolutionary farming methods have transformed bare coral into a fertile landscape able to support domestic livestock and wild animals such as water buck

has he restored a third of almost 900 acres of blasted landscape, but he has made Bamburi a ray of hope for a continent with some of the worst environmental problems on earth.

Experts have long proclaimed the virtues of using local plants and animals for innovative agriculture, especially for a technique known as agroforestry which combines growing trees with raising crops and livestock. Trees supply fuel, building-poles, foods—and livestock browse. Above all, they protect the earth and represent the best approach to re-greening the continent.

Down to Earth. The problem has been to produce the goods without costly inputs of fuel and fertilizer. Yet Haller has managed to get it all together by combining low-cost pragmatism with time-proven customs and new farming techniques.

Meticulously organized and ever inventive, René Haller exudes effervescent good spirits. He is part bright-eyed man of ideas, part hard-nosed entrepreneur. "There's always a better way," he says, "and everything must pay its way."

Haller's African success story began in 1959 when he arrived in Mombasa to join Bamburi Cement, which had become sensitive about its scarred-earth image. "The company asked me to conceal the scars of its quarrying," he says.

But how to get anything to grow on bare coral with only saline ground water? "The earth is so rock hard," exclaims Haller, "that I have

to get my staff to dig holes with picks before I plant trees."

All told, Haller has found only half a dozen tree species that can prosper in such hostile conditions. The best is *Casuarina*, a needle-leaved tree which supplies its own nitrogen fertilizer by plucking the raw material out of the atmosphere. Haller's casuarinas have grown so vigorously that his grove of several dozen acres produced more than 50 tons of fuel wood after only five years.

Two other species, planted in tandem, tell a special tale of Haller's ingenuity. Despite being an excellent source of charcoal, the fast-growing *Conocarpus* has been rarely used on plantations. Its drawback is that on this kind of soil it cannot grow alone. The *Prosopis*, a relative of the American mesquite shrub, grows more slowly, but it helps to convert nitrogen in the atmosphere into a nutrient. It also produces flowers suitable for honey-making and fruit for livestock feed. A plantation of both trees makes up a far better forest than if the two are grown separately.

This kind of interrelatedness is the key factor in all Haller's activities. "Nature does not do things by compartments and nor should we, if we are to take advantage of the full natural bounty of the earth," he says.

His livestock programme again illustrates the principle. Baobab Farm supports 2,000 sheep, 160 goats and 25 cattle. The animals graze in the bushland of the limestone reserve

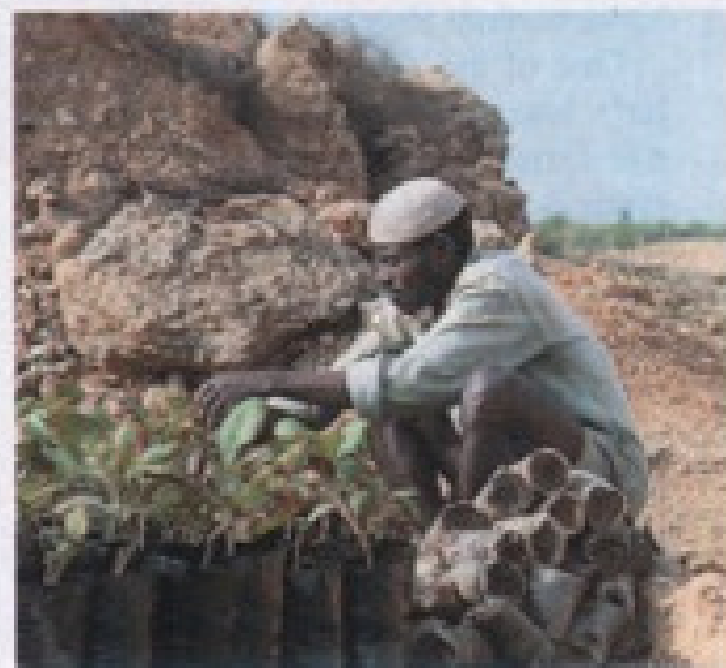


Harvesting the desert: workers tend intensively farmed tilapia fish, cut casuarina trees for building-poles, and plant conocarpus and prosopis tree seedlings to reclaim land

and feed on the grass now growing among the trees in a thin layer of new soil, produced from leaf litter. They also eat foliage and fodder generated by the diverse plantings. "The forest provides shade as well as food," Haller explains. "If my pasture were open grassland, the livestock would not survive a drought year."

In among the domestic animals roam 45 antelope. They need next to no water, eat different plants from conventional livestock, and produce more protein per unit of animal weight than an African cow.

Another source of protein produced at Baobab Farm is fish.



Haller built a series of fish-rearing tanks, stocking them with tilapia, a succulent fish that proliferates in East Africa's lakes and rivers. The outcome is an unparalleled success. As Haller explains, raising domestic fish is probably the most efficient method for producing animal protein.

Haller produces 35 tons of fish a year from a mere one-third of an acre. And as with most of Haller's

ideas, there are easy-to-duplicate lessons for local people. Every "shamba," or smallholding, has space for a simple pond lined with clay. The owner throws in a few fingerlings and feeds them with farm waste. Given enough good quality water, he can produce more animal protein in a week from a ten-square-yard pond than many Africans get in a month.

Fresh Fields. Already Haller's package has been adopted throughout much of Kenya and in several other African countries. Last year, his methods won him a United Nations Environment Programme award.

One of the newest aspects of Haller's integrated philosophy is crocodile farming. Haller feeds 650 young crocs a diet of fish offal and waste from livestock carcasses. Raised in forest lakes at Bamburi and in a special compound, they cost nothing to keep. When they reach sufficient length, Haller hopes to make a tidy profit by marketing their high-value skins. In turn, their meat would be fed back to the fish.

Yet that's only the beginning. In moister parts of his farm, Haller harvests surplus earthworms, which offer top-grade protein for his fish, and raises giant African snails for

human food. In addition he grows grapes for wine on steep hillsides, collects honey from hives in groves and cultivates bananas.

Such inventiveness may be an antidote to many of Kenya's problems. The bulk of the country's 22 million population is made up of poor farmers scratching out a living on tiny plots of land. For these hard-pressed multitudes, the value in Haller's operation is that a farmer can often get the most from his patch of land by enabling it to produce food, fuel, and fuel all at once.

As word of Haller's accomplishments spreads, more and more local farmers visit Baobab Farm to see what they can try out back home. I met such a group from a village 100 miles inland and asked why they had travelled all that way. "Our children are many and our acres are few," their leader said. "We had heard of this Swiss man who smiles and makes something out of nothing. We want to see for ourselves."

Haller is showing small-scale farmers that they, too, can make their lands fruitful. If his message can be spread widely enough, thousands can regenerate their environments and enhance their living standards.