

NATURE NOTES

Mamata Pandya

Originally posted on www.millennialmatriarchs.com

As we go for our walk nowadays, the early October mornings are filled with a heavy sweet fragrance. We look up to see the trees that look as if they have been sprinkled with an overnight flurry of snowflakes. The Saptaparni is in bloom!

The Saptaparni is one of the many names of the tree, but one that most literally describes it. It comes from two Sanskrit words—*sapta* meaning seven, and *parni* which refers to leaves. The tree is characterised by its pattern of (generally) seven leaves which grow in a whorl attached around a stem. In addition to Saptaparni which the tree is called in Sanskrit as well as in Gujarati, the tree is known by different names in different Indian languages: Marathi - Satvin, Hindi - Shaitanki Jhur, Chatwan, Chatian, Bengali - Chattim, Tamil - Palai, Ellaiappala, Malayalam - Palai, Telugu - Edakulapala, and Kannada - Maddale.

One of the English names of the tree--Devil's Tree--however refers to the beliefs associated with the tree. Folklore in many parts of India associates the tree as one on which the Devil resides. This association is reflected in the local names such as Shaitan, Chaitan, Chattim etc.

Another English name of the tree is Blackboard tree or Scholar tree. This is because in the past the wood of the tree was used to make slates and blackboards. This is also reflected in its botanical name *Alstonia scholaris*. The generic name *Alstonia* commemorates the distinguished botanist Professor Charles Alston of Edinburgh, while *scholaris* is a reference to its traditional use to make wooden slates for students.

When leaves are plucked the tree yields a milky sap. The sap is toxic, and in large doses the bitter and astringent extract from its bark can be harmful. But the tree is also known to have a number of medicinal uses, especially in traditional medicine. The famous Ayurvedic physician Charaka used a paste of Saptaparna bark, known as Dita Bark, in ointments for chronic skin problems, and in prescriptions for urinary diseases. Another ancient physician and surgeon Sushruta prescribed the drug internally as well as externally in urinary diseases, poisoning, fever, malignant ulcers, leprosy and other virulent skin diseases and fistula. It is said to be useful in heart diseases, asthma, chronic diarrhoea, and to stop bleeding from wounds. The fresh bark juice with milk is said to be administered in leprosy and dyspepsia as well as to treat ulcers. The bark is also used in Homoeopathy for weak digestion, anaemia, low fever often with diarrhoea, dysentery and as a tonic after exhausting fever. The tree has been used in traditional Chinese medicine to treat headache, influenza, malaria, bronchitis and pneumonia.

However it may be named—by form, by folklore, or by use, this indigenous evergreen tree is found in most parts of India. It has a rough greyish bark, and the branches grow evenly around the trunk giving the tree a beautiful form. The whorled pattern of slightly rounded dark green leaves distinguishes it. The tree is transformed in the flowering season, which is between October and December. A night bloomer, the greenish-white flowers grow in ball-shaped clusters and exude a heady fragrance. Perhaps it is this phenomenon that has led to the belief in many tribal communities that the tree is where the devil resides; and thus people avoid sleeping under the tree, or even sitting under it. The belief could also be related to the fact that some people may be allergic to its pollen or fragrance, irritating eyes, or causing breathing problems. This may have led to the association that sleeping under a saptaparni tree could make a person ill.

This tree does not feature as prominently in art and literature as do some others. But the Soptoporni or Chatim (as it is called in Bengali), has an interesting link with Tagore's Shantiniketan. The story goes that in 1862, Debendranath Tagore (the father of Ravindranath, and a leading figure in the Indian Renaissance) was on a boat journey. As he was passing the village of Bhubandanga, he saw lush

green paddy fields bordered by rows of wild date palms and Chatim trees. He decided to step off the boat to rest; and sat in a glade of chatim trees for his evening prayers. He was filled with such a sense of peace and happiness that he bought 20 bighas of land there to set up a spiritual retreat which he named Shantiniketan (the abode of peace). The place with the grove of Chatim trees was named Chatimtala. Later Rabindranath expanded the retreat and its activities and it became the Vishwa Bharati University, but the Chatim trees became a symbol of the origin and spirit of the great institution. This was also demonstrated in the tradition that at the university's convocation ceremony, every student was given, along with their degree, a whorl of saptaparni leaves. In recent years, supposedly to prevent excessive damage to environment, this presentation has been made symbolic--the vice chancellor of the University accepts one saptaparni leaf from the chancellor on behalf of all the students.

Going back to its other name—Devil's Tree, there is a lovely folk tale from Madhya Pradesh.

Once upon a time there was shepherd boy who loved to play the flute. Every day as his goats grazed in the hills, the boy sat in the shade of a Chatian tree and played his flute. In the tree lived a fierce spirit or shaitan who scared away anyone who dared to sit in the shade of its tree. But when the spirit heard the boy playing his flute, he could not help being charmed by the melodious music. He would come down from the tree and dance joyfully to the lively tunes. The shaitan and the boy became good friends and passed the days with music and dance.

One day a prince was passing by and he heard the notes of the flute. He was entranced. He asked the boy to play for him every day. He promised that when he became king, he would make the boy his minister. After he left, the shaitan came down from the tree and warned the boy not to believe rich people who made false promises. But the young and innocent boy was taken in. The prince came every day and the boy entertained him with his music. The shaitan was upset and refused to come down from the tree anymore.

Time passed; the king died and the prince ascended the throne. The boy was excited; he went to the palace to meet his friend who was now the king. But young king refused to recognise his old friend and drove him away. Heartbroken, the boy returned to the hills and sat dejectedly under the Chatian tree, not even able to play his flute. The shaitan was concerned. He came down and the boy told him his sad saga. The Shaitan was enraged; he put a curse on the king which transformed him into an ugly monster. The palace announced a reward for whoever could break the spell. The shaitan was delighted that he had taught the king a lesson, but the kind hearted boy was very upset and said that he would not play the flute until the shaitan had taken away his spell. Finally the shaitan relented. He told the boy to go to the palace with a branch of the chatian tree, and wave it three times in front of the king, with the words "the spirit of the chatian tree release you from their magic". This time the boy was allowed in, and he did as the shaitan had told him to. The king was restored to his original form. The king was overjoyed and asked the boy to stay in his palace and become his minister. But the boy was wiser this time. He said "I am only a shepherd, and all I know is to play the flute." And he returned to his hills and his goats and his favourite chatian tree, to play his beloved flute. And the shaitan joined his friend to dance in joy every day.

I love this story. We have a Devil's' Tree at our front gate. I would like to believe that the friendly spirit in the tree protects our home, and that it enjoys the music that we play!

I first got acquainted with the Red Panda not in the lush forests of North East India but in the hot and arid environs of Gujarat. In fact, I shared office space with it in Sundarvan, the small animal park in Ahmedabad, as I embarked on a new journey as an environmental educator. How it reached all the way across the country to live a solitary life surrounded by humans is a story that I cannot clearly recollect. But the memory of starting the day by seeing the quiet furry creature with its bright curious eyes is as clear as if it was just yesterday.

For most of us, the word Panda immediately conjures up the image of the teddy bear like black and white animal that bears little resemblance to this cat-like animal with reddish brown fur and a bushy tail. That is because the Red Panda is not a panda at all!

Scientists have determined that although they share a habitat (and a love for bamboo) with the Giant Panda, Red Pandas are genetically closer to skunks and raccoons. Their taxonomic position has long been a subject of scientific debate. For many years, Red Pandas were classified as part of the Procyonidae family, which includes raccoons and their relatives. But DNA studies show that Red Pandas represent a unique family that diverged from the rest of the Carnivore Order, and taxonomists place them in their own unique family: Ailuridae. Red Pandas are the only living member of the Ailuridae family. *Ailurus fulgens fulgens*, the scientific name of this rare and beautiful species literally means 'fire-coloured cat'.

While the word Panda is a misnomer, the adjective Red is an apt description of this animal which has thick reddish brown fur. While its body is the size of a large cat, its bushy tail, marked with alternating red and buff rings, is almost as long as its body. Red Pandas have large, round heads and short snouts with big, pointed ears. Their faces are white with reddish-brown 'tear' marks that extend from the eyes to the corner of the mouth. Dense fur completely covers their feet which have five, widely separated toes and semi-retractable claws.

Their form is beautifully adapted for life in the mountain forests which are home to these animals. They spend most of their time on trees—sheltering, feeding, and sunbathing in winter. The structure of the feet and extremely flexible ankles which can rotate 180 degrees, help them in adeptly climbing headfirst down tree trunks. A special thumb-like wrist bone helps them get an extra grip when climbing.

The russet coat provides perfect camouflage among the clumps of reddish-brown moss and white lichens that cover the branches of the fir trees in which they dwell. The top cover of long coarse hairs, and the soft dense woolly undercoat provide a double layer of warmth. The long bushy tails which they curl around their body provide protection from the harsh winter winds. The tails also provide support and traction to these nimble arboreal acrobats. If a red panda starts to lean in one direction, it can swing its tail the opposite way to steady itself.

While different from their namesake in form and family, the one characteristic that the Giant Panda and the Red Panda share is that they are both bamboo eaters. But while Giant Pandas feed on all parts of the bamboo plant, Red Pandas feed selectively on the most nutritious leaf tips, and when available, tender shoots. Both pandas have a pseudo thumb, a modified wrist bone which helps to grasp the bamboo while feeding. In fact the name Panda is said to come from the Nepali word *ponya*, which means bamboo or plant eating animal. Bamboo is not a great food source for energy, and is hard to digest. In fact, Red Pandas digest only about 24 per cent of the bamboo they eat; so they need to eat

20 to 30 per cent of their body weight each day—about 1 to 2 kilograms of bamboo shoots and leaves. In one study, female Red Pandas were found to eat approximately 20,000 bamboo leaves in a single day. While bamboo constitutes about 95 per cent of the Red Panda's diet, they may also forage for roots, succulent grasses, fruits, insects and grubs, and are known to occasionally kill and eat birds and small mammals.

Red Pandas are usually active at dawn and dusk, sleeping during the hottest part of the day. They begin their "day" by licking the front paws and then cleaning the fur all over the body in a cat-like, sitting posture in the tree; and then "washing" their face with fore and hind paws

Red pandas are solitary except during the breeding season. They scent-mark their territories using anal glands and urine, as well as scent glands located between their footpads. The scent is odourless to humans, but the Red Panda tests odours using the underside of its tongue, which has a cone-like structure for collecting liquid and bringing it close to a gland inside its mouth.

Red Pandas are generally quiet, but subtle vocalizations—such as squeals, twitters and 'wha' sounds—can be heard at close proximity. They may also hiss or grunt, and young cubs use a whistle, or high-pitched bleat, to signal distress.

It is the "wha" cry of the Red Panda which was the key identifying feature of this creature when it was first introduced in the Western world. In 1821, the English naturalist Major General Thomas Hardwicke made a presentation on the creature at the Linnean Society in London. In his presentation titled *Description of a new Genus of the Class Mammalia, from the Himalaya Chain of Hills Between Nepaul and the Snowy Mountains*, he described this hitherto unknown creature and suggested argued that the animal be called a "wha," because as he explained *It is frequently discovered by its loud cry or call, resembling the word 'Wha', often repeating the same: hence is derived one of the local names by which it is known*. But Hardwicke's paper was not published till 1827 by which time the French zoologist Frederic Cuvier published a description of the species along with a drawing. He claimed it was the most beautiful animal he had ever seen and named it *Ailurus* (from the Greek word *ailouros*, which means cat, and *fulgens*, meaning fire-colored or shining. Thus the species was named *Ailurus fulgens fulgens*.

In its Himalayan habitat, the animal is still known by its local names. In Nepal, it is called *bhalu biralo* while the Sherpas call it *ye niglva ponva* or *wah donka*.

Red pandas live in high-altitude, temperate forests with bamboo understories in the Himalayas, and other high mountains in Asia. They range from northern Myanmar (Burma) to the west Sichuan and Yunnan Provinces of China. They are also found in suitable habitat in Nepal, India and Tibet. Scientists have now identified two sub species: *Ailurus fulgens fulgens* which lives predominantly in Nepal and can also be found in India and Bhutan, and *Ailurus fulgens styani* (or *Ailurus fulgens refulgens*) which is primarily found in China's Sichuan and Yunnan provinces.

Today this unique animal is endangered. As with most species in the wild, its habitat is under threat, with destruction of its nesting trees and food plants. The animals are often killed as they get caught in traps meant for other animals such as wild pigs and deer. They are also poached for their distinctive pelts. Conservation organisations are working with local communities to create awareness, and take steps to reduce the human threats to the fragile habitat of the beautiful fire cat which has its own special part in the web of life. The Red Panda Network, an international organisation focusing on this, encourages local people to become forest guardians to keep an eye on these creatures, track poachers, and replant bamboo in the forest. 18 September is marked as International Red Panda Day. A good time to learn about this Panda that isn't a Panda!

My grandfather, Gijubhai Badheka went to East Africa as a young man in 1907. Recently I was reading some memoirs of his time in what was then truly an unknown continent. One of the pieces described how he and his friends were chased by a hippo. This led me back to my own stay in Kenya, almost 75 years later, and to remember some other hippo stories.

While in Kenya, we often went camping in the national Parks. In our early days there, whenever we were setting off on safari we were told “Beware of the kiboko!” In a big game park, one would assume that it was the simba or lion that we needed to keep a safe distance from. As it turned out, we were being warned about the hippopotamus!

Till then, the only time that I had seen a hippo was in a circus. I remembered, from years ago, a big ungainly creature lumbering into the ring and being made to open its mouth, revealing huge ugly teeth. Into this wide cavern, its keeper placed a cabbage, whereupon the hippo closed its mouth, turned around and lumbered out of the ring. End of hippo act!

To be told, that in the wild, the vegetarian hippo, if disturbed, could be more dangerous than the big carnivores was somewhat hard to believe. More interesting was to also discover many fascinating facts about this animal.

The word hippopotamus comes from Ancient Greek, and loosely translates as “river horse.” Indeed this creature spends most of its time in water in rivers or lakes, keeping its massive body cool under the hot African sun. Although a hippo can hold its breath for up to five minutes, it must also come up for air. Its eyes and nostrils are located high on the head allowing it to see and breathe as soon as its head rises above the water. Just as breathing and blinking are automatic actions for us humans, a hippo subconsciously, and regularly, surfaces for taking a breath even while staying fast asleep.

Although these mammals spend a considerable amount of time underwater, and even give birth underwater, hippos cannot really swim! Instead they simply walk or run along the riverbed, pushing up periodically through the water for air.

One of the main reasons hippos spend so much time submerged underwater is to prevent their skin from drying out and cracking under the hot sun. They also love wallow in the mud which provides a protective and cooling layer over their sensitive skin. They even secrete their own sun screen lotion, moisturizer and germicide—an acidic substance that turns red when exposed to the sun. This has given rise to the myth that hippos sweat blood.

Hippos are huge—among the largest land animals on the planet after the African elephant and rhino! Male hippos can weigh up to 3,200 kg and a baby hippo can weigh up to 50 kg at birth. And like the elephant and rhino hippos are vegetarian. Hippos feed mainly on grass; but considering their enormous size, a hippo's food intake is relatively low—between 30 and 50 kg per night. For this, while they spend the day in water, they come on to land at sunset, walking up to 10 km a night as they graze on grass.

Hippos and their habits play an important role in the ecosystem. On land, their grazing keeps the short grasses trimmed, and the swath cut by their huge bodies creates a trail that other animals also

use. As they walk under water they stir up the mud, and as they defecate in water their dung provides microorganisms that are an important component of the aquatic food chain.

Hippos are celebrated and revered in Africa, and feature prominently in African folklore. There are several folktales about why the hippo has its distinctive features. One of these is a delightful tale from South Africa that sums up all the characteristics of the Kiboko.

Long long ago in the dry and dusty plain Kiboko sat on the bank of the river under the blazing sun. Kiboko had never been in water before. Like the rest of his kind, he lived on land and ate grass. This was what the great mountain spirit Ngai had ordained. As he looked at the fish swimming in the cool water, he thought how wonderful it would be to like them. He thought, "Why don't I ask the great spirit Ngai?" So Kiboko walked and waddled and lumbered and plodded all the way to meet the Great Spirit. At last he reached, and begged for a chance to live in rivers and streams. The great Ngai was angry. "The river is no place for a huge fellow like you. You would eat all my little fishes!"

"No, no" promised Kiboko. I will continue to eat grass. And I will open my mouth wide whenever you ask, to show you that I have not eaten even a little fish. I will even stir up the water with my tail so that you can see that I have not hidden any fish bones."

"Well" conceded Ngai, "you may live in the water, but...you must come out of the water every night so that you do not eat any fish at night, and you will eat only grass that grows on land".

Kiboko agreed to all the conditions. He was so happy! He ran all the way back and jumped straight into the river with a mighty splash! But he forgot that he was not a fish; he could not swim! He sank straight to the bottom. He never learned to swim, but he learned to hold his breath, and to run along the bottom. This he does to this day. He also wags his little tail and stirs up the silt, to show that he has not hidden any fish bones. And every now and then he surfaces and opens his mouth wide as if to say "Look Ngai, no fishes!"

The seemingly benign hippo can be surprisingly aggressive, when its 'safety zone' is threatened. This may happen when humans visit rivers to collect water, wash clothes or bathe. With growing human encroachment into wilderness areas, this leads to human-hippo conflict which could lead to fatalities. But today hippos are under threat from increasing human encroachment that is leading to their habitat loss; they are also hunted for their skin and teeth. The hippopotamus once ranged from the Nile Delta to the Cape, but now is mostly confined to protected areas. Currently, the species is listed as "Vulnerable" by the IUCN. As with all other species, the hippo too struggles for survival amidst the humans.

While Ogden Nash once captured the humour in the mutual perceptions, sadly today we look like the biggest threat to the hippo.

*Behold the hippopotamus!
We laugh at how he looks to us.
And yet in moments dank and grim
I wonder how we look to him.*

Every few months when we step out onto our little sit-out deck in the morning, we find pockets of sawdust strewn on the floor. Initially we thought that it was termites that had started eating away at the old wooden pergolas over the deck. But a general check could not reveal any other tell-tale signs of termites. So we continued to be baffled about what was responsible for this.

One morning as we sat there we saw a large black bumble bee flying about the pergolas, and then quite mysteriously disappearing somewhere into the wooden beam. A closer examination revealed a hole in the wood, and it seemed to be the one into which the bee had vanished. So now we had a possible suspect, but as yet no confirmation of the link between the sawdust and the bee. The next time there was sawdust, we checked the wood just above it and sure enough we found a neat hole. The next step was to find out if a bumble bee could also be a boring bee!

Some preliminary research confirmed one suspicion—that the drilling in the wood was indeed the work of a bee. But it also refuted the supposition that this was a bumble bee. What we discovered was that this was a bee called the Carpenter Bee, and also many interesting facts.

To start with, of course, the name. Carpenter bees are aptly named for their habits of drilling into wooden surfaces such as logs and tree branches, or in urban areas, wood used for construction. They drill a neat hole in the wood and tunnel into the wood in order to make their nest and lay their eggs. In a couple of hours the carpenter bee can drill a hole a few inches deep, leaving beneath the debris of sawdust.

Carpenter Bees (*Xylocopa latipes*) are one of the largest bees we have here in India. They are big and black with an intimidating appearance. Their wings shine in the sunlight with metallic blue, green and purple colours. The male and the female are more or less similar, but the male has hairier legs.

Carpenter bees do indeed resemble bumblebees, but while bumblebees usually have a hairy abdomen with black and yellow stripes, carpenter bees typically have a shiny, hairless abdomen. The two bees also have different nesting habits—bumblebees nest in an existing cavity often underground (e.g., in abandoned rodent burrows), whereas carpenter bees tunnel into wood to lay their eggs.

Another distinguishing feature of Carpenter bees is that they are solitary bees, unlike most other honeybees and bumblebees that live in colonies and are known as social insects. The honeybees make hives, while carpenter bees excavate and make well structured tunnels in wood. They vibrate their bodies as they rasp their mandibles against the wood

After boring a short distance, the bee makes a right angle turn and continues to tunnel extending about 30-45 centimetres parallel to the wood surface. Inside the tunnel, five or six cells are constructed. Each cell houses a single egg, and each one is provided with a wad of pollen collected from flowers, which could serve as nourishment for the larva when the egg hatches. Each cell is then sealed with regurgitated wood pulp and saliva. The larvae feed on the high protein and calorie pollen bee bread, and enter hibernation, before they turn into adult bees and emerge from the tunnel. Adult females can live up to three years and can produce two generations of offspring per year, they never see their offspring!

What an amazing feat of insect architecture was going on, hidden from us, in the single beam of wood right over our head, as we sipped our morning tea!

Equally impressive is the contribution of these bees to the cycle of nature. Carpenter bees typically visit large open-faced flowers which have a lot of pollen as well as nectar. They use vibrations to release the pollen from the flower's anthers, and are described as buzz pollinators. As they feed on nectar from many flowers, the pollen from the flowers sticks to the underside of the abdomen and the legs, which is transported from flower to flower as they flit and settle to feed, playing a vital role in pollination.

Curiously while I have seen the bee hovering around the wooden beams, I have yet to see one buzzing around the flowers. So the next step in my tracking the bee's journey still remains incomplete. Even the drilling seems to happen after dusk, as the saw dust appears only in the morning, when the bee appears to be rather ominously hovering around, guarding the entrance to its nesting tunnel, and then flying off into the sunlight.

Interestingly, despite their intimidating appearance, it seems that the males are harmless and do not sting. Female carpenter bees can inflict a painful sting but will seldom do so -- unless they are handled or bothered by people-- another difference between these solitary bees and other bees and wasps that inflict dangerous stings.

While carpenter bees are have their own place in nature, when they start their drilling activities in wood in houses and gardens, they can become pests. As they hollow out the wood, this can lead to the deterioration or collapse of wooden structures. With our already old and weather-worn wooden beams starting to become favoured nesting sites for Carpenter bees, we had to look for ways to stop these boring buzzers. Research indicated that one option was to inject chemical insecticides or pesticides into the holes. We could not bring ourselves to do this.

We then read that these quiet-loving bees do not like vibration or noise around their nests, but seeing as they were happily drilling right next to our large and loud wind chime, this was obviously not bothering them.

Another thing that these bees are said to be very sensitive to is citrus scents near their nest, and spraying citrus oil into the holes was a recommended way to foist them off. We have arrived at our version of this by plugging the new holes with wedges of lemon. We think that this is playing some part in preventing their access, so one battle at a time is won. But this has certainly not deterred their efforts at drilling new holes, so if the beam collapses on our heads one fine morning, the bees would have won the war!

LEPIDOPER-ARTIST

6 August 2021

It is butterfly season again. After a few hot, dry months, it is a treat to see so many different kinds of butterflies fluttering and flitting among the flowers and leaves. Butterflies have inspired art and poetry; and they have also been the subject of the scientific study by lepidopterists. The distance between the artist and the scientists has always been distinct, starting from primary school where children learn about the life cycle of butterflies in Science class and draw and paint these colourful creatures in the Art class.

It is amazing to know that nearly four centuries before there was a woman who successfully and impressively combined the art and the science to produce some of the most groundbreaking work on butterflies and other insects. This is her inspiring story.

Maria Sibylla Merian was born in 1647 in Frankfurt at a time when scientific study of life was still in its infancy. Her father was an engraver and publisher, who died when Maria was a baby. When she was three years old, Maria's mother married Jacob Marrel who was a renowned still-life painter. He encouraged young Maria's interest in collecting live insects and also taught her the art of flower painting. As she grew, so did her passion for both these hobbies—which became lifelong commitments.

Women of Maria's class and era collected butterflies as a hobby. Their catches were displayed as pinned specimens. Maria was driven by a different approach. She was not interested in dead specimens. She was fascinated by live insects and wanted to understand not just the insects and their life stages; but also their habits and habitats, the plants that they associated with and fed on, and their interactions with other species.

From the age of 13 she started collecting caterpillars and raising silkworms. She observed how they changed form at different stages, until they developed into butterflies or moths. She not only kept meticulous records and notes of her observations, but also detailed drawings of the process. She often painted by candlelight as she awaited the moment when the caterpillar made its cocoon, or a butterfly emerged from one. She painted caterpillars feeding on their host plants and being fed upon by their predators.

She publishing her first book of illustrations at age 28; this was followed by a two-volume set on caterpillars (published in 1679 and 1683) that showed the metamorphosis and host plants of 186 species.

Maria Merian was the first person to document the life cycle of butterflies. At that time it was widely believed that life originated spontaneously from inanimate matter. For example, that flies arose from rotting meat; other insects, including butterflies formed from mud, and that raindrops produced frogs. Maria's observations and documentation opened up a new dimension.

This was also an era when most women did not have the opportunity of going to university. Maria was far from a being an academic scientist, nor did she have the freedom to devote all her time and energy to this pursuit. At the age of 18 she married her stepfather's apprentice, and had two daughters. The marriage was not a happy one, and she left her husband, taking both her daughters, to live in a religious community; eventually getting a divorce. For many years she brought up her daughters as a single mother, supporting the family by teaching painting to daughters of wealthy families; and still making time for her art and scientific studies. By then she had moved to the Netherlands, where she spent the rest of her life.

For the first fifty years of her life, Maria observed and documented hundreds of European insects, from caterpillars to spiders. She became well known for her work; collectors and art dealers would frequently come to her and show her insect dead specimens for her to observe.

But in 1699, at the age of 52, she embarked on one of the first purely scientific expeditions in history. She sold 255 of her paintings to finance the trip. Her goal was to illustrate new species of insects in Surinam, a South American country which had been recently colonised by the Dutch. After two months of dangerous travel, accompanied by her 20-year-old younger daughter, she reached Surinam.

For Maria Merian this was an entomologist's paradise. She was itching to collect and paint everything she saw and collected. But the Dutch planters of the island were not willing to accompany the two women into the forests to collect insects. So she forged relationships with enslaved Africans and indigenous people who agreed to bring her specimens and who shared with her the medicinal and culinary uses of many plants. Merian and daughter spent two years in Surinam before Maria's failing health from frequent bouts of malaria, forced then to return to the Netherlands.

But the compilation of all her work in documenting and illustrating flora and fauna in Surinam resulted in a book titled *Metamorphosis insectorum Surinamensium*. It was written in Latin, the international language of science, with 60 stunning copperplate engravings that brought the exotic world of the rainforest to the damp drawing rooms of Europe. The book became well known on scientific and artistic circles.

Merian's eldest daughter, Joanna, subsequently made the journey to Surinam and would send her mother new specimens and paintings until Merian's death, at the age of almost 70, in 1717.

For a woman of her time, with no university education, Maria Merian's meticulous scientific and artistic work earned her respect. Karl Linnaeus, famous for developing a system for classifying life, referred heavily to her illustrations in his species descriptions. The grandfather of Charles Darwin, Erasmus Darwin, cited Merian's work in his book *The Botanic Garden*.

Merian also published works in German and Dutch, which allowed lay readers unprecedented access to scientific discoveries, arguably making her one of the earliest science communicators.

Merian was also proved to be a successful businesswoman. She sold her drawings and engravings to finance the printing of her own books, which she would later sell. This financial security also allowed her the freedom to pursue her interests and ideas.

In the 1800's, by which time university-trained academics laid stake to "biological knowledge" there was a trend to discredit Maria Merian and her work. As she had no formal scientific training she was written off as a woman with a hobby who painted beautiful – but entirely unscientific – pictures of butterflies. Although her work continued to inspire and influence generations of artists, her contributions as a scientist were largely forgotten. It is only in more recent years that her scientific work has been revisited and revived.

Maria Sibylla Merian was a pioneering naturalist, who also managed a successful career as an artist, botanist, naturalist and entomologist. Merian studied the behaviour and interactions of living things at a time when taxonomy and systematics (naming and cataloguing) were still at a nascent stage. She laid the groundwork for the fields of entomology, animal behaviour and ecology. She was the first ever to show the interaction between species, food chains, and the struggle for survival in nature. And how environment affects development and behaviour. She captured the ecology of species, centuries before the term even existed.

At a time when other scientists were trying to make sense of the natural world by classifying plants and animals into narrow categories, Merian looked at their place within the wider natural world. She searched for connections where others were looking for separation. She also managed a successful career as an artist, botanist, naturalist and entomologist. Today when there is so much talk of encouraging women in STEM, it is more than worthwhile to remind ourselves of this inspiring woman who not only successfully combined her artistic and scientific work, but also pioneered fields of study that we erroneously believe to have more recent origins.

Last week the cyclone that battered western India left thousands of trees, old and young, uprooted. It also saw the demise of the venerable tree man of India Sundarlal Bahuguna to whom we paid tribute earlier this week.

Many of us (then) young environmental educators cut our teeth on the legend of Chipko and its inspiring leaders. But behind these movements and leaders were earlier pioneers who paved their thinking and the way. One of these was a man who Sundarlal Bahuguna called his Guru, and who in turn considered Bahuguna as his kindred soul

This was Richard St. Barbe Baker, an English biologist and botanist, environmental activist and author who is known as the pioneer of a worldwide movement to plant trees, and remembered simply as the Man of the Trees.

Richard was born in 1889 in Hampshire in England in a family descended from lines of farmers, parsons and evangelists. Growing up in a home that was surrounded by woods young Richard spent hours wandering among the trees and getting to know and love them. He also spent a lot of time gardening, and developed a lifelong belief in the value of manual work. After school Richard travelled to Canada in search of adventure while he did some missionary work. There he saw how the prairie was being destroyed and the soil being degraded by unsound agricultural practices. Young Richard was shocked and shaken; he felt that he was seeing Mother Earth being stripped alive. Richard had the head of a scientist but the heart of a humanitarian which could not bear to see the forest cover being torn from the earth. He returned to England to study forestry at Cambridge. After suspending his studies to serve in World War I, he graduated, and went to Kenya as a colonial forester in the early 1920s.

In Kenya Baker witnessed the environmental devastation that resulted from a combination of the traditional slash-and-burn farming methods of the region, overgrazing by goats, and from the colonial farmers' introduction of crops and methods requiring enormous acreage. He developed a plan to restore the native forest by planting food crops between rows of young trees. But he faced tremendous resistance from the indigenous Kikuyu people who believed that planting new trees was "God's business".

Quite different from the 'White Man's' attitude to native populations, Richard felt that he needed to gain their trust. As he later wrote: *To be in a better position to help them I studied their language, their folklore and tribal customs, and was initiated into their secret society, an ancient institution which safeguarded the history of the past which was handed down by word of mouth through its members.*

Soon I came to understand and love these people and wanted to be of service to them. They called me "Bwana M'Kubwa," meaning "Big Master," but I said, "I am your M'tumwe" (slave).

Richard looked to one of their long-held traditional practices—holding dances to commemorate significant moments as an opportunity to also promote an awareness of the significance of tree planting and conservation. From this integration of cultural values and environmental stewardship was born the

Dance of the Trees. His work of healing the land in partnership with the Kikuyus led to his becoming the first white person inducted into the secret society of Kikuyu Elders. He was given the name *Watu wa Miti*, The Man of the Trees, an appellation that became the name of an international organization that began as his first reforestation project in 1922.

In 1924 Richard embraced the Baha'i Faith and his deep belief was expressed in a love for all forms of life and in his lifelong dedication to the natural environment. His personal mission of spreading the message of the importance of trees and forests in sustaining life was carried through his organisation originally called Men of the Trees which grew into The International Tree Foundation, the first international non-governmental organization working with the environment. This is just one of many organizations he established in his lifetime.

St. Barbe's formal work as a forester and his personal mission took him to many countries in Africa as well as other parts of the world including New Zealand. He looked upon the world as his garden

Perhaps among the places and people that touched him the most was India. In 1959 Baker came to India, where he assisted Prime Minister Jawaharlal Nehru in instituting a tree-planting program to address the Indian desert problem and to raise the water table. He made similar efforts in Pakistan, Australia, and other countries affected by encroaching deserts.

In 1977 Richard came to India to participate in the International Vegetarian Congress. This is where he met Sundarlal Bahuguna who had come down especially from the hills especially to meet him. In an article written in 1979 Sundarlal recalled how *"Two months earlier I had written a letter to him at his Sussex address through the Ecologist, offering my services for his mission, while giving a brief account of the 'Chipko movement' which we had launched to save trees in the Himalaya. I had made a request to him to devote some time for the Himalaya on his arrival in India. He never received my letter, but as what I had read about him inspired in me a profound veneration for him, I had come all the way from the hills to Delhi as if on a pilgrimage to have his 'darshan'. When I touched his feet, he kept his hand on my head and gave me an affectionate pat. He does not shake hands but acknowledges greetings with folded hands. I felt as if I was in the presence of a heavenly soul.*

In July 1989 on the occasion of St. Barbe Baker's centenary, Sundarlal spoke at the International Conference of 'The Men of The Trees, Trees are Life' at Reading University, England. He shared how St Barbe Baker got engaged with the Chipko movement.

As soon as he heard about the Chipko Movement in the Himalaya he left the conference hall (of the Vegetarian Conference) and decided to go there. In those, days I was regarded as an undesirable person, because we were fighting against the so-called scientific felling of trees. The important people in Delhi did not want him to go to the Himalaya. To persuade him they said, "You are an old man (he was then 88) and in view of your failing health you should not take the risk of travelling through the rugged mountains". He replied, "At the most it will mean my death. I am already living on bonus. I live only for a day and if I die for the cause of the Himalaya, that will be the most glorious event of my life. I will go straight to heaven." When they saw his determination, they asked, "Since when do you know this man with whom you are going?" He instantly replied "What do you mean, since when have we been knowing each other--for many lives!" We were together for eleven days. I took him to Vinoba Bhave, the walking saint of India, the disciple of Mahatma Gandhi. When the moment of our departure came, I was very sad. I asked, "When shall we meet again?" He cheered me up by saying, "We shall be meeting each other during our prayers and while working to save trees."

St Barbe Baker died at the age of 91 on 9 June 1982 during a visit to Saskatoon, Canada, only a few days after planting his last tree. Sundarlal Bahuguna died on 21 May 2021 at age 94. Both inspirational figures whose lives were a unique blend of environmental awareness, spiritual activism, and total dedication to their cause. Their life was indeed their message.

FROGLORE

20 May 2021

May 22 is marked as the International Day of Biological Diversity. Last year the theme was Nature is the Solution. And carrying forward the same, the theme this year is We are Part of the Solution—a reminder that humans are but one strand in the intricate web of life, and that our lives are intricately and inextricably bound with every other strand in this web. Nature sustains not only in terms of resources, but also nurtures us culturally and spiritually.

A few weeks ago I wrote about an example of how plants are an integral part of the traditional knowledge, culture and customs of many indigenous peoples. (see <https://millennialmatriarchs.com/2021/04/22/maria-and-her-magic-mushrooms/>). The study of this close relationship is called ethnobotany. Scientists and anthropologists also study the past and present interrelationships between human cultures and the animals in their environment. This is called Ethnozoology. One of these relationships that has long fascinated anthropologists is the one with snakes and amphibians. These are creatures that commonly evoke revulsion, fear, suspicion and awe, sometimes even hysteria. And yet these are richly represented in mythology, culture, art, and literature of indigenous cultures around the world.

While researching for an exhibition on frogs, I discovered a wealth of fascinating facts and beliefs about creatures that we don't often give a second look, let alone a second thought to—frogs and toads.

The human imagination, has over eons, cast and recast frogs and toads in legends, and beliefs. They appear in the stories and myths of almost every human culture, taking on almost every role conceivable, from the trickster, to the devil, to the mother of the universe.

In many traditions around the globe, frog is generally associated with the water element and it symbolises cleansing, renewal, rebirth, fertility, abundance, transformation, and metamorphosis in different cultures.

In ancient Egypt, the frog appears as a symbol of fertility, water, and renewal. The water goddess Heket often appeared as a woman with the head of a frog. Frogs were also the symbol of the midwife goddess Heqit, who ruled conception and birth, and Egyptian women often wore metal amulets in the form of frogs to enlist her good favour.

This association with fertility was also ecological. Every year the flooding of the Nile provided water and brought rich silt to grow crops; at that time frogs also proliferated in such huge numbers that the frog became a symbol for the number *hefnu*, which meant either 100,000 or simply "an immense number." Thus the frog's association with water and fertility, so important for life, made them positive symbols,

Ancient tribes in Central America worshipped a goddess known as Ceneotl, the patron of childbirth and fertility, who took the form of a frog or a toad with many udders. Also, frogs and toads were considered spirits of rain, and were used in many rituals intended to invoke the rains. The Aymara tribe of Peru and

Bolivia made small frog images, which they placed on hilltops, to call down the rain. Indeed, if the rains failed, some tribes blamed the toads for withholding the rain, and would lash them in punishment.

In India it is believed that the 'singing' of frogs indicates that the rains have come and it is a time for celebration, while the silence of the frogs means that nature and the Gods have forsaken man. In some parts of India frog weddings are held with rites and rituals, and celebrated with feasts to invoke and appease the rain gods, especially in times of drought.

In Ancient China images of frogs were found on the drums used to summon thunder and much needed rain.

Frogs feature in the myths of many Native American tribes. In some they represent transformation and growth, while in others they are associated with springtime and renewal. They are believed to have healing powers and are considered medicine animals. In the shamanistic traditions of some of these cultures, hallucinogenic compounds derived from frogs and toads are used for religious rituals of communion with the spirit world and self-transcendence.

Thus most native cultures revered frogs and toads, as they did all forms of life, and recognised that these were all intrinsically linked with the elements of nature and each other. However in later periods and cultures, the "strange" appearance of frogs and toads with their awkward form, huge eyes and croaking calls evoked fear and a sense of eerie mystery. Folklore from medieval Europe depicted toads as evil creatures whose blood was a potent poison and whose body parts had unusual powers. Toads were commonly seen as evil spirits who accompanied witches, assisting them in their evil designs, and providing poisonous ingredients for potions. Many myths were perpetuated around toads. One widely held myth concerned the Toad-Stone, a jewel that was supposed to be found inside the toad's head. According to myth this jewel, placed in a ring or a necklace, would heat up or change colour in the presence of poison, thereby protecting the wearer from foul play. Such references are even to be found in some of Shakespeare's plays.

In many ancient Chinese tales and legends also, the toad is a trickster and a magician, a master of escapes and spells. Some Chinese tales refer to the toad whose face is believed to be visible at the full moon; and they believe that it is this moon-toad that occasionally swallows the moon, causing eclipses.

But the Chinese also believe that that toad is the keeper of the real, powerful secrets of the world, such as the secret of immortality. There are several legends that reinforce this belief. One is about a wandering wise man called Liu Hai and his three-legged toad companion Ch'an Chu who knows the secret of immortality, and who reveals this secret to the wise man who befriends him.

This awe of the benevolent magical powers of frogs and toads is seen in most oriental cultures. In China the frog is a symbol of good luck. The Frog spirit Ch'ing-Wa Sheng represents prosperity in business and healing. Frogs and toads also signify protection. The Chinese Danwu, or Dragon Boat Festival was traditionally celebrated to ward off diseases and plagues for the coming year. Several symbolic creatures are worshipped on this day for protection against evil spirits, and ill health, among which the three-legged toad Ch'an Chu is significant.

In Japan frogs are very auspicious. The Japanese word for frog is kaeru. Kaeru also means "return". Travellers carried bring a frog amulet on their journey as this was believed to secure a safe return.

Thus have frogs and toads captured human imagination since time began. It is also these myths and beliefs that reminded humans of the vital role that even the seemingly insignificant creatures play. But

with the march of “progress” and as humans have been relentlessly destroying the habitats of uncountable, and as yet unaccounted for, living things we are losing much more than species. We are losing the essence of what makes our lives rich and meaningful. Who will populate our mythologies when these creatures are gone? Perhaps we will be left with only one story: the story of loss.

FIRE IN THE FOREST

25 March 2021

As the Indian winter winds to a close, forests in many parts of India burst into flames. Nondescript trees that are hardly conspicuous for most of the year, come ablaze with crimson-orange flowers that lend them the name Flame of the Forest. It is a forest fire that announces the arrival of spring.

It is the Palash tree that sets the forest on fire. It gets its name from the Sanskrit word *Palasha* which means both ‘leaf’ and ‘beauty’. The tree was earlier known as *Parna* tree, which also means ‘leaf’. Another Sanskrit name for it is *Kimsuka* which means ‘like a parrot’. This is the root of the other common name for it—Parrot tree.

The tree has many popular common names including Bastard teak, Bengal kino, Flame of the forest, Kino tree, and Sacred tree. It is also called Battle of Plassey tree, as it is believed that the village near where this battle was fought was called Palash due to the abundance of these trees there. The British mispronounced this as Plassey, and so that is how the battle is remembered in history.

The tree is known by different names in different parts of the country: *Palash*, *Dhak* and *Tesu* in Hindi, *Palas* in Marathi and Bengali, *Kesudo* and *Khakra* in Gujarati, *Moduga* in Telugu, *Purasu Maram* in Tamil, and *Pangong* in Manipuri.

Its botanical name is *Butea monosperma*. The genus *Butea* is named after the Earl of Bute, who was a patron of Botany; *monosperma*, means ‘having one seed’. It is a medium-sized deciduous tree with a crooked trunk and branches. The bark is rough and greyish but the branches are velvety and dark olive green in colour. The large trifoliate, pale bronze green leaves are initially velvety but later turn leathery. The flowers appear when the tree sheds all its leaves. The orange-scarlet flowers grow in stiff clusters of three. Each blossom has five soft petals covered with fine hair. The orange petals curve backwards, with one of them in the form that resembles a parrot’s beak, giving it the name Parrot tree.

The curious formation of the flowers is often referred to in folklore. One riddle in Bihar asks

“What has: An elephant tusk, But not a tusk;

The body of a monk, But not a monk;

The head of a crow, But not a crow; But a parakeet?”

Curiously, for all their beauty, the blossoms are scentless. This led to the analogy, in some old writings, describing a person with beauty, but without moral or intellectual qualities as a human Palash!

The Palash tree has strong cultural and religious associations. References can be found to this tree in mythology, legends, classical, and popular literature.

According to one legend, a falcon dipped its feathers in *Somarasa*, the drink of the Gods which was believed to be made on the moon. One of its feathers floated down to Earth and became the Palash tree.

The tree is frequently mentioned in the Vedas and its trifoliate leaves represent the Hindu triad with Brahma on the left, Vishnu in the middle and Shiva on the right. The plant is used in many Hindu religious ceremonies. In earlier days when a Brahmin boy was initiated into monkhood, his head was shaved and he was given a Palash leaf to eat; his staff was made of Palash wood. During the sacred thread ceremony the leaves are used as platters when a particular part of a ceremony is performed; the dry twigs are used for the *havan* or sacred fire of the Navagraha Pooja to pacify the nine planets on the occasion of *Vastu shanti*. Many religious songs have mention of the fruits and flowers of Palash being offered to Gods to invoke their blessings. A Buddhist legend has it that the Queen Mahamaya grasped a branch of the Palash tree at the moment of the birth of her son Gautama Buddha.

Poets and writers have been inspired by the form and colour of the Dhak or Tesu flowers. Jayadeva in *Gitagovindam* compares the flowers with nails of Kamadev or cupid with which he would wound the hearts of lovers. Rabindranath Tagore in his poems described them as a celebration of life... "the flames of the forest have lit up in smiles". The forests of Madhya Pradesh where the Palash is found in abundance are the setting of many a Rudyard Kipling tale.

This decorative tree thrives well on a wide variety of soils including shallow, stony sites, black cotton soil, clay loams, and even in salt lands and water-logged places. The tree is very drought resistant and frost hardy, and is resistant to browsing. It grows back even when it is cut down to ground level; and grows rapidly in full sunlight. The tree attracts birds and squirrels, and can be propagated by seeds

The different parts of the tree have numerous uses. The young leaves are used for fodder, eaten mainly by buffaloes. The fibre obtained from the tree is made into ropes and cordage. The gum from the tree, called *Kamarkas* in Hindi, is used in certain food dishes. The flowers are used to prepare traditional *Holi* colour. A bright yellow to deep orange-red dye is also prepared, used especially for dyeing silk and cotton.

The leaves have traditionally been stitched together to make plates and bowls, and even umbrellas. In some tribal communities a prospective son-in-law was tested for his dexterity in making these plates and bowls. He was accepted if his father-in-law approved of the product! Today these leaf dishes are being popularised as eco-friendly alternatives to paper and plastic.

One of the commercially important products yielded by this tree is lac. Palash is an important host for the tiny lac insect whose resinous secretion was traditionally used to make purple-red dyes used to colour silk, leather and for cosmetics. Today this is refined to make shellac. Shellac has high commercial value; it used for many products including wood sealers and finishers; floor polishes, inks, grinding wheels, electrical insulations, and leather dressings.

The Palash has numerous medicinal values in Ayurveda. Different parts of the tree are used to treat a wide range of health issues from eye ailments to liver, urinary and gynaecological disorders.

The sturdy tree also has a valuable role in soil conservation. Farmers frequently use Palash with its binding fibrous roots to stabilize field bunds and for erosion control.

When we were children we used to play a game called Fire in the Forest, Run, Run, Run. This is one forest fire that invites one to run towards it, intoxicating the viewers with its colourful flamboyance.

Last week someone gave us a fruit that was perfect in form and colour. We learnt that this was a persimmon. I had read poems and descriptions of persimmons in Japanese literature, but had not seen nor tasted this 'exotic' fruit before.

This is one of the many exotic fruits that are now being seen and sold in India. Some children today are perhaps more familiar with the taste of fruits like kiwi and dragon fruit, than fruits like ber, custard apple, mango, guava, and the ubiquitous banana, that we grew up eating.

With a lot of the new fruits being introduced and cultivated in India, and several being imported from other countries, the lines between indigenous and exotic fruits are rapidly getting blurred. Along with this, and better storage systems, so is the concept of fruits that are associated with, and available in specific seasons.

Perhaps it is a good time to go back to the roots of the fruits, as I did, with the help of *A Historical Dictionary of Indian Food*. Here are some interesting facts.

In terms of food, fruit falls in the category of items called *phala* that refers to crops that are not cultivated using the plough, in contrast to food grains (cereals and pulses).

Fruits that are indigenous to India, or have been here since recorded history include ber, pomegranate, amla, sweet orange, lemon, lime, mango, sugarcane, jamun, and grapes; as well as coconut, banana and jackfruit. There is mention of these in texts as old as Vedic literature, and their use prescribed in ancient medical treatises.

Interestingly several of these have, today, gained international celebrity as Wonder Foods. Like the amla or gooseberry which is recognised as one of the richest natural sources of Vitamin C

Later arrivals were some forms of the apple, mulberry, peach, pear, plum and apricot. These were not originally of very high quality, but many of these were improved by grafting in Mughal times.

After 1500 AD there was a wave of immigrant fruits from South and Central America that included the papaya, sapota, guava, pineapple, custard apple, and avocado. But over time these began to be widely cultivated, and eventually became fruits of the native soil.

Ancient texts such as *Sushruta Samhita*, one of the most important surviving ancient treatises on medicine, prescribes fruits as the first item in a meal, beginning with a first round of fruits that could be chewed such as pomegranate, grape and ber; and a second round of fruit to be sucked, like sugarcane, dates, oranges and mangoes.

Fruit was traditionally preserved in India in the form of spicy pickles of mango, lime etc., or with the sweet sour flavouring of Gujarat. With the Muslim Unani medical tradition came the *murabba* in which fruits were preserved in a thick sugar syrup, and flavoured with spices like ginger, cardamom, and cloves. The British took a liking to these "preserves" and started to export large quantities of these along with chutneys.

One of the major use of fruit was to ferment it to obtain alcoholic beverages. The *Charaka Samhita*, believed to be one of the oldest and the most important ancient authoritative writings on Ayurveda, has

a long list of fruits used for this purpose which included sugarcane and its products like molasses and jaggery, grape, mango, wood apple, date, ber, banana, jackfruit and pomegranate.

While we certainly enjoy pickles and fruit wines in all seasons, it does feel a bit strange to be having a mango or watermelon in the winter. For me the anticipation of biting into the first mango in the searing heat of May, or seeing the first custard apples around the time of the Diwali festival, or picking the ripe purple jamuns that match the dark monsoon clouds is an integral part of the seasonal calendar. The pleasure of eating local and seasonal fruits is unmatched by the thrill of buying and trying exotic fruits like the dragon fruit and persimmon.

As we start 2021 which is the International Year of Fruits and Vegetables it is a good time to think about the fruits we eat, where they come from, how we buy them, and how we eat and enjoy them. After all the word fruit itself comes from the Latin *fructus*, whose root is *frui*, which means "to enjoy."

TOTALITEA

10 December 2020

Many moons ago, my husband and I were on a short trek on the Annapurna Trail. Late one afternoon we reached a small village where we would spend the night. As we sat, enjoying the unmatched feeling of contentment after a beautiful day's walk, we were joined by a young man. He bowed low, as only the Japanese do, and joined us in quiet contemplation. After a while, in broken English, he asked if we may be so kind as to join him in a small ceremony. We were happy to do so.

The young man led us to a large spreading tree around which was a built platform, and gestured to us to sit. From his backpack he took out a beautiful bowl and a brush, and with fluid movement cleaned the bowl. He then put in it some tea powder and hot water from his flask, and carefully stirred. With a low bow, he respectfully held the bowl in both hands and passed it to my husband, so that he may take a sip. He indicated that the bowl be passed on to me to do the same, and then he did the same when I passed it to him. All this was done in peaceful silence. When we had finished the bowl of tea, he explained, half in words and half by gestures that this was a traditional Japanese tea ceremony and that his guru in Japan had asked him to share it in a beautiful place with the right people. We were humbled that we had the privilege of this sharing amidst the breath-taking majesty of the mountains, the song of birds, and the crisp air.

It was one of the most meaningful and beautiful moments of sharing that we have ever experienced. The memory is vivid even after so many years.

We later discovered that our host had meticulously followed both the form and spirit of the *chado* or Japanese tea ceremony, an experience that is centred on respect, beauty, and simplicity. As is the tradition, before the ceremony begins, the host and the guests prepare their mind and spirit for the experience by leaving worries behind, and focusing on harmony and tranquility. The rest of the ceremony gently unfolds just as our young friend had done.

The history of the tea ceremony is equally engaging. The tea plant was brought to Japan in the 9th century by a Buddhist monk named Eichū on his return from China, where tea had been in widespread use for centuries. Eichū served the drink to an emperor, and not long after, an imperial decree was issued to start cultivating tea plantations in Japan. Initially tea drinking was limited to the social elite and only later it spread to other levels of Japanese society. It would take another three centuries before tea ceremonies would become a spiritual practice.

In the 15th century, Murata Jukō a Buddhist introduced the four core values of the ceremony--*kin*, or reverence; *kei*, respect for food and drink; *sei*, purity in body and spirit; and *ji*, calmness and freedom from desire.

In the 16th century, another Buddhist, Sen no Rikyū incorporated the philosophy of *Ichi-go ichi-e* ('one time, one meeting'), the idea that each individual encounter should be treasured as such a meeting may never happen again.

Our chance encounter with the Japanese tea ceremony and our host was literally and spiritually "one time, one meeting".

Tea and rituals related to tea have an important role in Oriental cultures. In China, where tea is said to have originated, one of the first written accounts about the tea ceremonies dates as far back as 1200 years ago, during the Tang Dynasty. The serving of tea was also named *cha dao* which meant 'the way of tea'. Attention to tea preparation and serving became the preoccupations of the Chinese tea connoisseurs, which transformed the way tea was regarded by the Chinese.

The Chinese tea ceremony is a blend of the philosophies of Confucianism, Taoism and Buddhism and is based on the respect for nature and need for peace. The traditional tea ceremonies were described as *he* which translates as 'peace', *jing* which translates as 'quiet', *yi* which means 'enjoyment' and *zhen* meaning 'truth'.

The tea ceremony remains one of the most significant traditions, even today, in Chinese weddings. The ceremony is conducted on the day of the wedding and sees the bride and groom respectfully serve tea to their parents, in-laws, and other family members. This symbolises the union of two families, the respect for the elders on both sides, and the elders' acceptance of the marriage. In Chinese, the expression "drinking a daughter-in-law's tea" is used to represent a wedding. What a simple but eloquent symbol tea can be.

While Japanese and Chinese poets have written lyrical odes to tea, the British approach to their cuppa is much more "stiff upper lip" and mundane! As William Gladstone said:

If you are cold, tea will warm you;
If you are too heated, it will cool you;
If you are depressed, it will cheer you;
If you are exhausted, it will calm you.

As for India, as with all other things there are myriad versions and preparations of the ubiquitous chai! Every home and every family has its own special brew, and chatting over chai is a national pastime.

In my home, the long morning tea session is an unbroken tradition, complete with a big teapot and numerous cups of 'English tea.' It is a time to sip, and savour our little garden while we each peruse the morning papers. It is a comforting and happy way to start a new day. And to remember the words of the Vietnamese spiritual leader, poet, and peace activist Thich Nhat Hanh:

Drink your tea slowly and reverently, as if it is the axis on which the world earth revolves—slowly, evenly, without rushing toward the future. Live the actual moment. Only this moment is life.

What brought on these ramblings about tea? Every year, since 2005, tea-producing countries have been celebrating International Tea Day on December 15th. The day seeks to draw the attention of governments and citizens around the world to the impact that tea trade has on workers and growers. Last year it was proposed to expand this celebration to all countries around the world and to move the day to May 21st.

December or May, for tea drinkers every day is Tea Day.

SAVE OUR SOIL

3 December 2020

Unless we are a farmer or a gardener, few of us consciously think about soil. And yet, it is soil that sustains life on earth. Scientists study biodiversity on land and in the water, but not as many look that closely at soil and what it harbours. Soil is home to more than 1/4 of our planet's biodiversity, but we only know 1 per cent of this universe.

December 5 is World Soil Day—an international day to celebrate Soil. This day was first recommended by the International Union of Soil Sciences (IUSS) in 2002; it was supported by the FAO and endorsed by the UN General Assembly in June 2013. The day means to raise global awareness about the importance of healthy soil and advocate for the sustainable management of soil resources. It is marked on December 5 was chosen because it corresponds with the official birthday of the late H.M. King Bhumibol Adulyadej, King of Thailand, who was one of the main proponents of this initiative.

This year's World Soil Day theme is Keep Soil Alive, Protect Soil Biodiversity. Now, more than ever before, soil biodiversity is under pressure due to unsustainable soil management that affects life belowground. This theme focuses attention on the workers belowground--from tiny bacteria to agile millipedes and slimy earthworms--all of which contribute to processes that are indispensable to life on Earth.

It is a reminder that unless people around the world proactively engage in improving soil health, soon, the fertility of soil will continue to be adversely affected at an alarming rate, threatening global food supplies and food safety.

Here is my small contribution to this day. Giving soil a voice!

The Soil's Lament

I am soil. Ever thought about me?

Always underfoot, you think I'm here for free.

In your fields and gardens, roads and lawns
On mountains in deserts, in cities and towns.

I can be living, feeling, strong and healthy like you
But I can also get sick, and sometimes tired too.
Then I get weaker, unable to nurture life to grow.
How can that happen, would you like to know?

Year after year, season after season
You plant me with the same crops with the reason
That the more you put in, the more you will get.
But that's just where you will lose the bet.

In such a hurry you are, to sow and reap
Have you ever thought that I'd like time to breathe?
Ever considered that I too need to recuperate
From trying to deliver at such an unnatural rate?

Give me a break, give me a rest. Be kind to me, I'll give you my best.

The unending cycle will sap all my strength
Suck the minerals and nutrients out from my depth
One fine day I'll just run out of steam
Then those bountiful harvests will be just a dream.

And then you will pump me with every artificial aid
Chemicals, fertilizers, all the tricks of the trade.
Hoping the fruit I then bear will be so fast and good.
But could you thrive on pills alone, and no natural food?

Give me a break, give me a rest. Be kind to me, I'll give you my best.

Or will you drug me with pesticides and insecticides
To destroy the "enemies"-- the aphids, thrips and mites.
You don't realize that with every deadly dose
My allies too are dying, not just my foes.

You strip me of my protective cover
Tear away trees, shrubs, grasses, every small flower
That keep me secure with a protective cloak
From the fury of rains and the winds that blow.

You leave me exposed, vulnerable, and bare
To be blown, swept and washed away, here and there.

Or you clad me in an armour of concrete and stone
So I can no longer breathe, nor give my friends a home.

Give me a break, give me a rest. Be kind to me, I'll give you my best.

Cover me again with a mantle of green
Let my own special magic do the job you're so keen
To assign to the factories, the labs and the vans
And potions from bottles and boxes, sprays and cans.

Let the humus, leaf litter and the biomass,
The lichen, the algae, the roots and grass,
The bugs, the beetles, the worms and snails
Do the job they've always done, and that never fails.

It's these millions of dwellers that give me life
That in turn I bestow on all plant life.
Let my friends and foes do all they might
If I'm strong and healthy, it'll be all right.

Give me a break, give me a rest. Be kind to me, I'll give you my best.

LOOKING AND SEEING

8 October 2020

A couple of months after the lockdown started there was a spurt of pieces and pictures about different aspects of the natural world that people had started noticing around them—the variety of birds and insects; the hues of the sunsets and sunrises; the vegetation with its changing cycles; the diverse sounds of nature, and much more. True that these became more evident as the relentless activity and cacophony of urban life became more muted. But perhaps, more likely, it was the fact that we humans have had more time to 'stop and stare' as it were.

If we were to stop a moment and think about it, we are always 'looking' at things but how often are we really 'seeing' something? We use our eyes, but our gaze is glancing, merely considering the objects, people and scenes that pass before our eyes. Things appear as they are at first glance, and we move on, not stopping to take in the image in all its dimensions and depths.

The dictionary says that to *look* means to direct your eyes in a particular direction, while in order to *see*, you must notice or become aware of someone or something. Seeing is not only noticing that something *is*, but understanding it, attending to it, and looking past the obvious to enjoy its more subtle nuances. It means noticing not only the details but also how those details are part of a whole.

Thus seeing is not just a function of the eyes but rather a combined effort of the eyes and the brain, which work together to sort out visual input and arrange it into meaningful images, within a context, and with significance to detail.

How do an artist and a scientist 'look at' and 'see' the same thing? Two beautiful passages bring these together on the same canvas.

Georgia O'Keeffe a 20th-century American painter and pioneer of American modernism best known for her canvases depicting enlarged flowers explained why she did this: *A flower is relatively small. Everyone has many associations with a flower--the idea of flowers. You put out your hand to touch the flower--lean forward to smell it--maybe touch it with your lips almost without thinking--or give it to someone to please them. Still--in a way--nobody sees a flower—really--it is so small--we haven't time--and to see takes time, like to have a friend takes time. If I could paint the flower exactly as I see it no one would see what I see because I would paint it small like the flower is small. So I said to myself--I'll paint what I see--what the flower is to me but I'll paint it big and they will be surprised into taking time to look at it--I will make even busy New-Yorkers take time to see what I see of flowers.*

Nobel-winning physicist Richard Feynman sees more than the aesthetic. As he said: *I have a friend who's an artist and has sometimes taken a view which I don't agree with very well. He'll hold up a flower and say "look how beautiful it is," and I'll agree. Then he says "I as an artist can see how beautiful this is but you as a scientist take this all apart and it becomes a dull thing," and I think that he's kind of nutty. First of all, the beauty that he sees is available to other people and to me too, I believe...*

I can appreciate the beauty of a flower. At the same time, I see much more about the flower than he sees. I could imagine the cells in there, the complicated actions inside, which also have a beauty. I mean it's not just beauty at this dimension, at one centimeter; there's also beauty at smaller dimensions, the inner structure, also the processes. The fact that the colors in the flower evolved in order to attract insects to pollinate it is interesting; it means that insects can see the color. It adds a question: does this aesthetic sense also exist in the lower forms? Why is it aesthetic? All kinds of interesting questions which the science knowledge only adds to the excitement, the mystery and the awe of a flower. It only adds. I don't understand how it subtracts.

As the great French novelist, playwright, essayist, and filmmaker Marguerite Duras said "The art of seeing has to be learned". This takes time, patience, and attention. And having learnt it, a skill that continually needs to be honed.

Today we are inundated with fast moving visual images that grab our eyeballs as they flash across our screens. But our attention spans are continually decreasing, as is our attention to detail. We do spend most of our times with our eyes wide open, but how much of that time do we spend in seeing? What better time than now, to start practising the art of seeing?

As I look at my little garden blooming after the rains, aflutter with multi coloured butterflies, and vibrant with the hum of the bees, I rejoice in 'seeing' it with new eyes each day.

In the sixteenth century, trade and merchant ships used to carry plants, spices and exotic animals from the colonial outposts of the ruling powers to Europe. In 1515, among the ship load of gifts despatched by the governor of Portuguese India, Alfonso d'Albuquerque, to King Manuel I in Portugal, was a curious animal known by its Gujarati name of *genda*, and its Indian keeper, named Ocem. The rhino was the first to arrive in Europe since the days of the Roman Empire, and it caused quite a sensation. The animal was examined by scholars and the curious, and letters describing the fantastic creature were sent throughout Europe.

Albrecht Dürer, an artist, mathematician, engraver and painter living in Nuremberg read about this strange animal and based on the description, he began a pen sketch which became a woodcut. Dürer's *1515 RHINOCERVS* became famous. Dürer himself had never seen a rhino and hence his rendering was more fanciful than accurate.

In many ways a rhinoceros is an odd-looking creature. Even its name, literally meaning a creature with a horn on its nose, belies its unusual appearance. Much before Durer, even for those who had seen a real rhino, its strange form and peculiar characteristics spawned a variety of tales. Tribes in Africa and Asia where the rhinoceros is found in the wild, have their folk tales that imagine how this creature came to be what it is. Here are some abridged versions.

A folk tale of the Tharu people of the Terai grasslands at the foothills of the Himalaya describes how the beast was created by the Hindu god Vishwakarma. He picked the best parts of many animals on earth and stitched them together. His creation had the skin of an elephant, the hooves of a horse, the ears of a hare, the eyes of a crocodile, the brains of a bear, the heart of a lion, and horns like Nandi, Shiva's bull. Viswakarma creatively twisted, moulded and further modified these parts, even fusing two horns into one. The result was beyond his expectation, a masterpiece of the art of imperfection.

The naturalist and wildlife writer Edward Pritchard Gee recounted an ancient Indian myth that explains the 'armour plating' of the rhino. It is said that, once, Lord Krishna decided to use rhinos in place of elephants in battle. However, when the creature, all covered in armour for battle, was brought in, it was found to be too stupid to obey commands. Therefore, it was sent back to the forest. Unfortunately, they forgot to take off its armour—and so it remains until this day.

One African tale tells of how the rhino got its skin. Long long ago, when all the animals were without a skin, God gave each one a needle and told them to sew a skin for themselves. The animals got to work, each creating for themselves beautifully patterned and fitting skins. But Kifam, the first black rhino, was clumsy and short sighted. As he started on his skin, he dropped his needle; so he charged back and forth looking for it, but being short sighted, he could not find it. In frustration, he snatched up a thorn and started stitching, trying to put something together. When he put on his hastily assembled patchwork coat, it hung in wrinkles and folds. The other

animals all laughed at him; this made him very cross; he was sure that they had hidden his needle. Since then the rhino charges at everything that crosses his path.

Another African folktale explains the rhino's habit of scattering its dung. As the story goes: In days long ago when animals could talk, Elephant always used to tease rhino about his near-sightedness and bad temper. One day Rhino really lost his temper. He challenged Elephant to a contest. The contest was to see who could produce the largest dung heap. Imagine two very large animals and the vast quantities of vegetation they eat, and you can imagine the lot of dung that they both make! But in the contest, Rhino made the larger pile of dung. The elephant was enraged. He attacked the poor rhino with his trunk and tusk and beat him till he cried for mercy. Finally the Elephant stopped the beating but made Rhino promise that he would never again challenge Him—the mighty Lord of the Beasts. Rhino never forgot that dreadful beating, and he is afraid to ever offend Elephant again. And that is why he always kicks at his dung heap, scattering it until it is quite flat, so that it always looks smaller than that of the Elephant.

The poet Ogden Nash humorously penned: *The rhino is a homely beast, For human eyes he's not a feast.*

While Rhino's looks may be perplexing, it is the Rhino's survival in the wild which is a pressing issue for wildlife conservationists. Rhinos also have the unfortunate distinction of being one of the most endangered animals on earth.

Of the world's five species of rhino, two are found in Africa--the Black Rhino and the White Rhino. The other three species are found in Asia. These are the Greater One-Horned (Indian) Rhino, the Sumatran Rhino and the Javan Rhino. While each of these species faces a different level of threat, some of the common threats that all of them face include poaching for their horn, habitat loss, and extreme climate events like floods and tsunamis.

Around 2010 less than 30,000 rhinos were alive in the world. The plight of the Rhinoceros wasn't known to people around the world, and most people didn't know just how close to total extinction majestic species was. So WWF-South Africa announced World Rhino Day in an effort raise awareness about this beast in peril, to save the world's remaining rhinos.

Today this has become an international event. How this came about is another, modern-day, story of two determined and dedicated women.

In mid-2011, Lisa Jane Campbell of Chishakwe Ranch in Zimbabwe was preparing for World Rhino Day. She searched online for ideas and potential collaborators, and found a blog by Rhishja Cota-Larson from Saving Rhinos in the USA. Lisa Jane sent Rhishja an email, and the two found they shared a common goal of protecting rhinos. In the months that followed, they worked together to make World Rhino Day 2011 an international day of celebration of all five species of rhinos, and awareness of the threats that they face. The two continued to work together to promote this day every year.

22 September--World Rhino Day has since grown to become a global phenomenon, uniting NGOs, cause-related organisations, businesses, and concerned members of the public from nearly every corner of the world!

This is my small celebration of this quirky creature with a horn on its nose!

A TREE FOR ALL REASONS

13 August 2020

The recent festival of Janamashtami brought to mind one of the few poems that I remember well from my school Hindi textbook. The first verse, roughly translates as:

Mother, if this Kadamb tree
Was on the bank of the Yamuna
I too would sit on its branches
And turn into a Krishna.

For years, in my mind, the Kadamb tree and Krishna were closely associated. This was reinforced by many traditional paintings depicting Krishna and his consort under the shade of what was meant to be a Kadamb tree. I did not see a real Kadamb tree till years later.

We had long wanted to plant a Kadamb tree in our little garden but felt that there would not be enough space for it to grow comfortably. A couple of years ago the huge Rain tree just outside our gate began to dry and decline. We felt that this was a good time and place to plant our Kadamb tree. Watching it grow has led us to learn more about this tree.

The Kadamb (*Anthocephalus kadamba*, *Neolamarckia cadamba*) or Burflower tree is indigenous to South and South East Asia. It is a fast-growing tree, especially in its early years, and may reach heights of 15-20 metres. The straight uniform trunk is usually smooth and grey, becoming slightly cracked as the tree ages. The trunk sends out uniform horizontal branches creating an umbrella-shaped crown, and the leaves are alternately arranged and clustered at the ends of the branches. The light glossy green leaves are oval, and 15 to 30 cm long. They have prominent veins on top and are lightly haired underneath. The tree sheds its leaves to conserve water in areas with a long dry season, but stays evergreen where the dry season is short. The leaves are fed to cattle.

Flowering usually begins when the tree is 4–5 years old; and flowers appear between June and August. The Kadamb flower that looks like a pom pom is, in fact, a ball of tightly-packed tiny funnel-shaped yellow-orange flowers. They have a sweet fragrance and are used for making perfumes. The flowers are offered in temples, and worn as hair adornments.

This year, with Covid on our minds, the flowers which were usually described as a resembling furry tennis ball have taken on an uncanny resemblance the Corona virus!

The flowers are followed by compound fruit that also resembles the round flower head. The fruit is made up of numerous small fleshy capsules compressed together in a ball. It is relished by monkeys, bats and birds. A single ball may contain almost 8000 seeds. When it turns orange and ripens the small capsules split apart, releasing a burst of seeds. A single ball may contain almost 8000 seeds which are dispersed by wind and rain. So the cycle of nature continues.

The different parts of the tree are also said to have pharmacological and biological properties that have medicinal value. In traditional medicine the bark is used to cure fever and cough, and juice of the fresh bark to treat inflammation of the eyes. The plant parts are believed to be effective in curing digestive disturbances, parasitic infection, high cholesterol and triglycerides, antibacterial activity, musculoskeletal diseases, fungal infections, cancer and anti-diabetic activity, and find place in Ayurvedic preparations.

For many Indians, it is not so much the botany as the mythology of the tree that fascinates. The Krishna connection is the best known, and this tree where he is said to have rested, romanced, and played his flute, is a recurring motif in poems, stories and paintings. The tree is also referred to as *Haripriya* or favourite of the God.

But the Kadamb tree features in many a lore and legend in different parts of India.

It is mentioned in the epics and the Puranas as a beautiful shady tree blossoming in the rainy season. The tree lends its name to the Kadamba Dynasty which said to be the first ruling kingdom of Karnataka, with Banavasi as its capital. It was considered a holy tree by the dynasty. The Kadambotsava spring festival is celebrated in honour of Kadamba kingdom by the Government of Karnataka at Banavasi in February every year. The Kadamba flower was the emblem of Athmallik State, an erstwhile princely state of India, now part of Odisha.

According to another belief, Goddess Durga Devi, an avatar of Devi Parvathi, loved to live amidst Kadamba trees and her presence is sensed if the *koel* sings in the Kadamb forest. Hence, the name *Kadamba-vana-vasini* or *Kadamba-vana-nilaye* (one who dwells in the Kadamb forest). In Madurai in Tamil Nadu, the Kadamba tree is considered to be the *sthalavruksham* (tree of the place) and a withered relic of the tree is preserved at Meenakshi Temple. The tree is also associated with a local deity called *Kadambariyamman* and the place was once said to be a *Kadambavanam* (Kadamba forest).

The Kadamb is part of the folk lore of many tribal communities, and even now is associated with tribal festivals and rituals. In Madhya Pradesh the festival of Karma or Karam is celebrated with dance and songs in the bright fortnight of the month of *Bhado* (August-September), during the rainy season. One of its rituals consists of the worship of the Karam or Kadamba tree. In West Bengal and Odisha, agricultural communities celebrate Kadam festival by planting Kadamb saplings. Tribal communities of Chattisgarh believe that planting Kadamba trees close to lakes, rivers and ponds, brings happiness and prosperity.

In Theravada Buddhism, it is believed that the Kadamb tree was where Sumedha Buddha achieved enlightenment.

From medicine to mythology, the Kadamb has something to offer. As I watch my young Kadamb growing fresh and tall in this rainy season, every new leaf seems to have its own tale to tell. And my friend Rekha and I, like two fond mothers, exchange notes on our respective Kadamb trees. Hers is flowering this year; I will have to wait another year.

JUST DESERTS

18 June 2020

I love deserts. Of all the ecosystems and landscapes, I have always felt the closest affinity to the desert. While I have trekked among hills and mountains, and have enjoyed the sea and seashore, it is the desert that makes me feel at once 'at home' as it were.

My introduction to the desert dates back many decades. As a young trekker I was a member of a group called the Delhi Mountaineering Association. One year, the mountaineers decide to descend from the mountains and explore a new terrain and undertake something that was hitherto unexplored. The result was the Desert Expedition—the first-ever attempt (then) to cross the Thar desert in Rajasthan on foot. Eight strangers (5 men and 3 women, including yours truly), sharing a common urge to explore and discover, came together to embark on a two-week journey that touched each of us in so many different ways, and left behind indelible memories.

The walk commenced from the little village of Sam, about 44 km from Jaisalmer. This is where I had my first sight of the dunes rising from a sea of sand in the morning sunlight—a curious composite of the ripples of the ocean with the majesty of the mountains. And from here walked, our motley band of adventurers; day after sunny day, dusty winds, clinging *bhurats* (prickly thorns). From the sand, through the unending vista of flat arid miles stretching to the horizon, stopping to quench our parched throats with *mathira* the juicy wild melons, and communing with our accompanying camels. The utterly comforting feel of sleeping on the sand, under the canopy of the Milky Way, lulled by the unbroken sounds of silence. A unique bonding over seven days and 190 km (every inch traversed on blistered feet!), that left me deeply in love with the desert.

While I have not been able to go the desert as often as I would like to, serendipitously the desert has made its way into my life from time to time.

I am often reminded by my erstwhile boss that the only credentials that started me on my career as an environmental educator, was the fact that I had been on that desert expedition! My work in environment led me to study and understand (rather than only experience) the different ecosystems. When I had the opportunity to develop a teaching-learning manual on Deserts, I plumbed the depths of literature on the subject and was awestruck by the fascinating facets, incredible adaptations, and the innumerable strands that weave together create a vibrant ecosystem in a seemingly lifeless terrain. What was once intuitive was bolstered with intellect.

More serendipity! A collaborative project with Abu Dhabi, and an equally ardent desert lover transported me (after so many years) into a desert again—the Arabian Desert, also known as the Empty

Quarter (Rub Al Khali in Arabic). Being amid the immense dunes and endless stretches of sand, was like homecoming. I would never have imagined this, all those years ago in the Thar.

And then, a trip to Ladakh to experience the cold desert—that I had only written about till then. So different—the starkness, the skies, the silence, and the sheer scale, and yet similar. Nowhere but in the desert have I felt this with such intensity.

My heart lies in the desert. Sadly I may not be able to recreate these experiences if I tried now. The once remote sand dunes of Sam are now a tourist hot spot. The dunes and dune life of Rub al Khali are being decimated by the sport craze for off-road vehicles zooming across the sand. The fragile The fragile cold desert ecosystem of Ladakh is being snowed under with overtourism. Deserts are disappearing, and no ‘development’ scheme can ever recreate them.

Ironically while the real deserts are under threat, human activity is leading to transforming non-desert areas into arid lifeless regions through the process of desertification. June 17 is observed as The World Day to Combat Desertification and Drought to promote public awareness of international efforts to combat desertification.

MAY MORNING

7 May 2020

Gulmohar

Flamboyant Exuberant

Bursting Exploding Flaming

A riot of orange and red

Summer!

TUK TUK

30 April 2020

Tonk tonk tonk...it starts before dawn has broken. Even before the crows start their warm-up caw-caws, and the magpie robin tunes up to launch into its melodious repertoire. A steady metronomic metallic sound—like the hammer of a coppersmith softly hitting the metal. The Coppersmith of the avian world is awake and ready for another call-marathon.

Last week when it first began calling, I rushed out to look for the source of the sound. It seemed to be all around—almost like sound-surround! But I know where look for it--the remains of the big rain tree that once overlooked my kitchen wash area. The tree died naturally last year, but its skeletal remains continue to invite so much other life--to perch, to play, and to pause awhile. This is the Coppersmith's favourite post. And sure enough there it was—on the highest point of the tallest bare branch—a speck

against the blue sky. Almost invisible, but certainly not inaudible. It puffed up its chest, and raising and bobbing its head from side to side (perhaps the secret of the sound surround!) called out like a muezzin from the minaret.

The Crimson-breasted Barbet, as it is ornithologically called, is a small bird with a loud call. It is just a little bigger, but chunkier, than a sparrow, but certainly not as drab. It dons a striking combination of brilliant colours—grass-green top feathers and green-streaked yellowish underparts; a crimson forehead and patch on its breast; vibrant yellow throat, and concentric eye rings of red and yellow. It has distinctive whisker-like feathers around its heavy/stout black beak, and a short truncated tail.

My bird book tells me that this bird is mainly a fruit eater, and is commonly found wherever there are fruiting trees, especially fig or banyan. The closest trees around my house are Gulmohar and Copper pod, which are also in full bloom, but not with the fruits and berries that this bird likes so much. Perhaps it finds these in the park next door. Although it baffles me, given the very short breaks between the continuous metronomes, how it manages to partake of sufficient nourishment to sustain its energy to call non-stop.

As the sun climbs higher, other birds fall silent as they seek refuge from the heat in the foliage of trees and hedges. But not our relentless caller. Under the blazing sun, on a high bare treetop, it goes on and on. Funnily, nowhere could I find out why it calls—is it to attract a mate? Difficult to know as both male and female look alike! Is it to warn of predators and danger? But then, why call continuously? Or is it for the sheer joy of being alive and sharing its song each day? I rather like to think of it this way!

Last evening during a lull, I scanned the tree and spotted it perched woodpecker-like, using its strong beak to excavate a hole in the dry branch. I discovered that it nests and roosts in these small holes. I am glad though that it has chosen to make its look-out point, and perhaps, its home on our tree. It is nice to have a TukTuk for a neighbour!

Tuk Tuk is one of the common Gujarati names for the Coppersmith.

WILD IS WONDROUS!

3 March 2020

March 3 is celebrated as United Nations World Wildlife Day. This marks the day of signature of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1973. Every year on this day, events are held around the world to celebrate and raise awareness of the world's wild animals and plants.

The theme of World Wildlife Day 2020 is "Sustaining all Life on Earth". This celebrates the special place of wild plants and animals in their many varied and beautiful forms as a component of the world's biological diversity.

India is a treasure house of biological diversity. It harbours 8% of the world's biodiversity on just 2% of the earth's surface. It is one of the 17 mega-diversity countries in the world with ten biogeographic zones, and an incredible diversity of habitats, flora and fauna.

Here is my small ode to this wild and wondrous land and its denizens.

I live in such a magical land
Of mountains and valleys, plateaus and sand.
Jungles and farmland, deserts, islands and seas,
Here's to my land of biodiversity.

Biodiversity Biodiversity
It's all about Life and Variety

In forests and fields, deserts and seas,
Animals and crops, microbes and trees.
Colours and patterns, functions and form,
To survive and thrive, adapt and transform.

Snow leopard and yak, and double-humped camels
The Himalayan cold desert is home to these mammals.
Shining blue lakes in the rugged landscape
Welcome winged visitors many coloured and shaped.

Biodiversity Biodiversity
Experience it, share it, enjoy it.

Where the mighty Ganga flows
River dolphins swim and gharials are found.
Proud tigers prowl, and deer abound
The fertile plains with bounteous yields
From forests and farmlands and fields.

Biodiversity Biodiversity
See it, taste it, smell it, feel it.

The North East is truly a garden of Eden
Full of priceless treasures, many still hidden.
Feathery ferns, bright orchids, bamboos tall
Where rhinos roam and Hoolock Gibbons call.

Biodiversity, Biodiversity
Appreciate it, savour it, explore it.

Discover that deserts are dry but alive,
Their dwellers have special tricks to survive
Store water, shed leaves, or burrow in the sand.
Why, even tigers and lions roar in this land.

Biodiversity, Biodiversity
Treasure it, enjoy it, study it.

In the Western Ghats meet a tahr, and a tiger too
Jumbos in jungles and a hornbill or two.
Colourful frogs that croak and call
Snakes and snails that slither and crawl.

Biodiversity Biodiversity
Learn from it, weave with it, heal with it.

Deccan highlands and grasslands, plateaux that soar
Dotted with buffalos, cows, goats and sheep galore
There grow seeds and cereals upon which we feast
And people who celebrate it all with their dancing feet.

Biodiversity Biodiversity
Plant it, grow it, cook it, eat it.

Deep in the seas meet clown fish and anemone in a coral jungle
Crabs, crocs and tigers in a mangrove tangle.
On islands in waters blue and green
See a megapode, a monitor, a Nicobar pigeon preen.

Biodiversity Biodiversity
Track it, live with it, delight in it!

Biodiversity Biodiversity
It's all about Life and Variety.
Biodiversity Biodiversity
Celebrate it, protect it, conserve it!

BACK TO THE ROOTS

17 October 2019

Last week a friend from France was visiting, and we had *bhindi* vegetable for lunch. The conversation turned to what this vegetable was called, and how it was eaten, in different parts of the world-- from crisply fried Lady's Fingers, to Okra soup. This not particularly fancy nor exotic vegetable boasts of a long list of synonyms including *gombo*, *gumbo*, *quingombo*, *okro*, *ochro*, *bamia*, *bamie*, *quiabo*!

Fruits and vegetables are such an integral part of our daily diet, but most of us are not aware of their intriguing histories. Many vegetable names simply refer to their shape, colour and taste. In the case of Drumstick, this makes sense, but to imagine *bhindi* as Lady's Fingers does take a leap of imagination!

The names of many vegetables and fruits in English have their origins in languages like Latin, Spanish, and French; and sometimes the original meanings lie hidden in their names.

Eggplant was given its name by Europeans in the middle of the eighteenth century because the variety they knew had fruits that were of a whitish or yellowish colour, and the shape and size of goose eggs. The purple variety that we are most familiar with, and call *baingan* or *brinjal* may have been derived from the Sanskrit *vatimgana*. This word travelled through Persian to the Arabic name *al-badinjan*, and further filtered through Portuguese and Catalan to become *aubergine* in Britain and Europe.

Cabbage gets its name from Middle French *caboche* which means 'head'. It was derived as a diminutive from Latin 'caput' which means head as it resembled the head of a person.

Orange, the fruit on the other hand, was not named for its colour, but the other way round. The word is believed to have its origins from the Sanskrit *naranga*; which explains why, in several Indian languages, it is called *narangi*.

Pineapple seems to be a simple joining of two English words--pine and apple. But surprisingly this word was originally used for what we call pine cone; although it is inexplicable why an inedible, hard piece of a tree should be called a pine 'apple'. To confuse things further, melon is the Greek word for apple!

In a similar vein, Gooseberry has nothing to do with geese. It was originally gorseberry, derived from the 'gorst' which meant rough. This berry was so called because it grew on a rough and thorny shrub.

Raspberry comes from the German verb *raspen* which means to rub together or rub as with a file. The marks on the berry were thought to resemble file markings.

Strawberry is a corruption of 'strayberry' which was so named because of the way the runners from this plant stray all over the place!

Currants were so called because they first came from Corinth. Cherries got their name from the city of Cerasus. The term grape is the English equivalent of the Italian *grappo*, and the Dutch and the French *grappe*, all meaning bunch. Raisin is a French word that comes from the Latin *racenus*, a dried grape.

Kiwi however takes the cake! It is so called not because it originated in New Zealand—the home of the Kiwi bird. It is the Chinese missionaries who brought the fruit to this country, and they called them Chinese gooseberries because they were from China and similar in flavour to gooseberries. It wasn't until the 1960s, when New Zealand began exporting the fruit, that people started calling them Kiwi fruit.

And then there is the tomato. In culinary terms we consider it a vegetable; but this is actually a fruit in terms of its botanical characteristics—it is edible, contains a seed, is at least somewhat sweet, and grows on a plant.

16 October is celebrated every year as World Food Day. This marks the date of the founding of the Food and Agriculture Organisation (FAO) of the United Nations. Let each day be one of thanksgiving and celebration of the food we eat, by whatever name we may call it. After all, a mango by any other name will taste just as delicious!

DRAGONFLIES

24 September 2019

The beginning of autumn
decided by
the red dragonfly
Shirao

The September morning sky these days is dotted with dragonflies with gauzy wings and gleaming bodies. It is an uplifting sight—to see them gliding gracefully, flitting, swirling and swooping like dancers against the canvas of blue sky and white clouds. I remember several Japanese Haiku that celebrate the dragonfly.

Dragonflies play an important part in Japanese life and culture. They are associated with autumn as well as spring, and are seen as harbingers of life and prosperity, birth and renewal, happiness and strength. Japanese art, literature, textiles, and design, as well as literature (especially haiku poetry) reflect this close association and respect. The red dragonfly is considered to be sacred. One of the popular traditional pastimes of Japanese children has been catching dragonflies.

The dragonfly is one of the oldest of the insect species, which has inhabited our planet for almost 300 million years. It is natural that they have become an integral part of folklore in many cultures which have developed their own beliefs associated with the form and life cycle of insect.

In China, people associate the dragonfly with prosperity, harmony and as a good luck charm. Amongst Native Americans, it is a sign of happiness, speed and purity.

In many parts of the world the dragonfly also symbolises adaptation, transformation and renewal. In Native American culture it was seen as a sign of resurrection after a hard struggle. This is probably associated with the metamorphosis that the insect undergoes in its life-cycle, from a drab larval stage in which it spends most of its life before it emerges as a graceful and colourful adult. It also symbolises the joy of living while at the same time looking deeper. Once it emerges, it has a very short time to live its adult life, but it seems as if it flies freely with no regrets, an inspiration to humans to make use of every single moment we have, and live as if there's no tomorrow! The Dragonfly's scurrying flight

across water represents an act of going beyond what's on the surface and looking into the deeper implications and aspects of life. Thus it also symbolises the virtue of living in the moment and living life to the fullest, while at the same time looking deeper.

Across cultures, the dragonfly has a strong association with light and it has been associated with magical qualities and mysticism. This may be associated with the fact that they exhibit the phenomenon of iridescence, which means that the body of the dragonfly can reflect and refract white light to create beautiful colours that change depending on the angle of light or the angle from which you look at them. Thus they also symbolize illusion--making others see you the way you want them to see!

Dragonflies are also respected by fishing communities. In some places it is believed that plenty of dragonflies over a particular spot meant there were plenty of fish around. If a dragonfly hovered near the fisherman, he took it as a good luck sign.

I had not realised what a deep and rich association the dragonfly has in so many cultures. However I have not found much about this association in Indian culture. We do tend to somewhat overlook, let alone write poems about, these flying insects as they neither catch our eye as butterflies do, nor intrude into our daily life as flies and mosquitoes do.

But I did come across something that makes immediate sense for me. Seeing swarms of dragonflies means rain is on the way; as our monsoon still lingers this year, we may expect some more! And, more practically, that dragonflies are very useful in helping combat the mosquito and other pests that constitute their prey. I definitely consider having them around my house as a symbol of health and good luck!

See this dragonfly....
His face is
practically
nothing else but eyes. Chisoku

SOMETHING TO BUZZ ABOUT!

20 May 2019

Today is World Bee Day, designated by none other than the United Nations!

This would have gone unnoticed had I not been reading about Bees for a lesson I was writing for a textbook. Having discovered that there was an international day dedicated to this small creature made me dig deeper--and unearth some delightful nuggets of information.

How did this come about? This was proposed by Slovenia (find that on the map!) on the initiative of the Slovenian Bee Keepers Association, and supported by the Slovenian Government. Following three years of efforts at the international level, on 20 December 2017, the UN Member States unanimously approved Slovenia's proposal, thus proclaiming 20 May as World Bee Day.

Why Slovenia? Slovenia has a long and rich tradition of beekeeping as a major agricultural activity. Known as a Nation of Beekeepers--one in 200 of its inhabitants is engaged in bee keeping, and there are many levels of Beekeepers Associations. It is known for its unique wooden painted beehive panels and traditional beehive architecture. Even today, most Slovenian beekeepers use a traditional beehive called the AŽ hive, which was created over one hundred years ago.

Why 20 May? This is the birth date of Anton Jansa (1734–1773), a Slovenian beekeeper, the pioneer of modern beekeeping and one of the greatest authorities on the subject of bees. Jansa wisely said "Amongst all God's beings there are none so hard working and useful to man with so little attention needed for its keep as the bee."

What's so special about bees? For most of us it is 'Think Bees Think Honey'. Besides honey, bees also produce high-quality food like royal jelly and pollen, as well as other products used in healthcare like beeswax and bee venom.

While bees are the only animals that produce food that is eaten by other animals, as well as humans, we do not realise that every third spoonful of *all* the food we eat depends on bees. It is bees and other pollinators that pollinate nearly three quarters of the plants that produce 90 per cent of the world's food. When bees go, we lose much much more than a spoonful of honey.

Bees are vital for the preservation of ecological balance and biodiversity in nature. They also act as indicators of the state of the environment. Their presence, absence or quantity tells us when something is happening with the environment and that appropriate action is needed.

So why should we worry? The number of pollinators is in decline around the world. In some parts, this situation has become known as "the pollinator crisis". New reports are raising the alarm about the rapid decline in bee species and numbers that will pose a direct threat to food production and food security. The time has come to heed the words of Albert Einstein "If the bee disappears from the surface of the earth, man would have no more than four years to live."

What can we do? For those of us bitten by the honey bug, we could take up beekeeping.

In India Government organisations like the National Bee Board under the Agriculture Department, and Central Bee Research and Training Institute (CBRTI) of the Khadi and Village Industries Commission (KVIC) provide training to not just farmers or those who wish to commercially supply honey, but also to anyone who is interested in beekeeping.

For the rest of us, we can do our bit by making bees welcome. We could provide fresh, pesticide-free drinking water; bees need to regularly drink water, especially in hot weather. We can also grow bee-friendly plants. Trees like gulmohar, champa and amaltas, and flowering plants like marigold, sunflower, rose, and hibiscus are ideal for attracting bees. Vegetable and fruit plants like ladies finger, onion, mustard, coriander, cauliflower, cabbage, carrot, brinjal, tomato, chilli, papaya, lemon, mango, guava and pomegranate are also good at attracting bees.

While we can't all transform into a Slovenia, maybe it's time that we saw that bee as more than just a passing buzz!

A MAY DAY

7 May 2019

Flamboyance

Fiery Brilliant

Blooming Bursting Flaming

Sets the tree on fire

Gulmohar

APRIL SHOWERS

30 April 2019

From the fiery furnace

of the sun

A cascade of

molten gold.

WHAT-a-MELON!

23 April 2019

What is red and green and white,

And a summer delight?

Watermelon!

This uncomplicated sweet and juicy fruit has always marked the onset of summer (prelude to the more sensuous, refined flavours of the mango!).

A recent family discussion on whether there was more to this melon than a lovely colour, sugar and water led me to explore. This is what I discovered!

Yes, it is 91.5% water, and thus a great antidote to dehydration; the juice is also full of good electrolytes which can even help prevent heat stroke.

But what else?

Watermelon is great for your health! It not just refreshes, a watermelon...

Is loaded with vitamin C and vitamin A, and contains essential minerals like potassium.

Has dietary fibre for digestive health.

Is bursting with lycopene which is considered to be a super antioxidant that prevents damage to cells and immune system.

Contains a natural substance called citrulline that is said to improved artery function and lower blood pressure, as well as protect against muscle pain. Watermelon juice before a gruelling workout may help reduce muscle soreness. But guess where citrulline is concentrated most? In the white flesh near the rind, which also has blood-building chlorophyll! So instead of throwing this away--try putting it in a blender with some lime for a healthy, refreshing treat.

And for something that tastes sinfully good, it is fat-free, and very low in sodium and calories.

Curiously the watermelon (*Citrullus lanatus*) wears a dual hat of being fruit as well as vegetable, belonging to the Cucurbitaceae family which includes cucumber and pumpkin.

It is believed to have originated in the Kalahari desert of South Africa. It may have been carried by seafaring merchants across the world--as far as China which is today said to be the highest producer of watermelons. It is believed that it reached the United States with the slaves from Africa. Today watermelon is the most consumed melon in the United States, where July is celebrated as National Watermelon Month!

And we thought that it was our own special summer delight!

What-a-Melon! Supermelon!

TIGER! TIGER!

21 February 2019

Gujarat is all agog with the news that a Tiger has been spotted within its political boundaries. Papers are full of speculation about where it came from and where it went. In the meanwhile the state has quickly laid claim to be the only one in the country with three big cats—lion, leopard, and now tiger!

The news led me to relook at a book the Matriarchs had done for teachers over a decade ago. Called *Tales of the Tiger* it was an attempt to create awareness and excitement about the tiger through providing interesting information and activity ideas for students.

Compiling information for the book was in itself an exciting and educative safari. It was not just looking at this awe-inspiring cat from the zoological point of view, but seeing it as an integral part of the ecosystem, as well as the social and cultural environment.

Beyond the roar to the lore, as it were! Sharing a few fascinating facts.

Tigers do not simply roar, growl and snarl. They have a wide variety of vocalisations such as chuffing, hissing, grunting, and mewling. A 'chuff' or 'prusten' is a friendly and non-threatening sound made when

two tigers meet. The 'pook' sound is a sound similar to the alarm call of the sambar, a favourite prey animal of the tiger. It has been variously interpreted as a way of locating prey, a mating call, or to announce its presence to other tigers. A tigress uses moans to communicate with her cubs. Tigers also use body (especially tail) language to show aggression, affection and curiosity.

Beyond the jungles, tigers have long been a part of folklore and literature in every culture. The tiger is variously feared, respected, admired, and distrusted, depending on the context. According to stories from Indian mythology the tiger is believed to have powers to do everything from fighting demons to creating rain; keeping children safe from nightmares, and healing. Tribal beliefs, arts and crafts often place the tiger as a central symbol of worship. For example the people of the Warli tribe offer a part of their harvest every season to the worship of the tiger. The people of the Bhil tribe believe that they have descended from tigers. Songs, proverbs and sayings in most Indian languages feature the tiger.

In India the earliest visual representations of the tiger are found on the seals and terracotta figurines on the Indus Valley Civilisation. A seal found at Mohenjo Daro, believed to date back about 5000 years shows a man sitting in a tree angrily addressing a tiger waiting below for him.

Even as scientists have studied and tracked tigers in an effort to understand them better, tigers all over the world are threatened and endangered. In India Project Tiger, launched in 1973, has been an important milestone in the history of tiger conservation in India.

While the new sighting of the tiger may possibly turn into a contest of "Mine, Mine!" it may be wise to remember and respect that this magnificent cat knows no political boundaries. May it always walk in majesty, wherever it may roam.

THE COUCALS ARE CALLING

9 FEBRUARY 2019

The Coucals are calling at the break of day,
Wooing and courting, a-hooping away.

The starlings have arrived from far far away,
They chirp and they chatter in a chorus all day.

Sometimes balmy, often chilly, that capricious breeze,
Raising billows of dust, and rustling through the leaves.

The sun plays hide and seek with wispy clouds,
The koels stridently shriek out loud.

Fresh blossoms bloom on some trees
While leaves are shed from other trees.

It's Spring!

While I soak in the sunshine on a pleasantly cool Ahmedabad winter day I read that the big Arctic chill has hit America and Europe. It's cold, cold, cold! News reports show how the blanket of snow has brought life to a standstill and people are being interviewed to share how they are coping.

I remember a poem that wonders how the Snow itself must feel.

SNOW PILE

*Snow on top
must feel chilly
the cold moonlight piercing it.*

*Snow on the bottom
must feel burdened
by the hundreds who tread on it.*

*Snow in the middle
must feel lonely
with neither earth nor sky to look at.*

The poem was written in the 1920s by a young Japanese poet Misuzu Kaneko. "Teru" as she was called, was born in 1903 in a small fishing village in western Japan in a family of booksellers. The book-loving child was encouraged to study by her mother and grandmother, and she stayed in school until she was 18, a rare achievement for Japanese girls at the time. She began writing poetry at age 20, and signed her work "Misuzu", in an allusion to classical Japanese literature meaning "where the bamboo is reaped."

In her poetry, Misuzu would share her sense of curiosity and wonder--What does snow feel in a drift? Where does day end and night begin? Why don't adults ask the questions children do? "To Misuzu, everything was alive and had its own feelings—plants, rocks, even telephone poles! She felt the loneliness of whale calves orphaned after a hunt. She felt the night-time chill of cicadas who had shed their old shells. And she felt the tearful sadness of a flower wet with dew."

Sadly her personal life was tragic and she committed suicide when she was only 27 years old. Kaneko and her work were forgotten for the next 50 years. The only known copy of her poems had been destroyed during the bombing of Tokyo in WWII. The bookstore where she once worked was long gone. No one seemed to know if she had any surviving family. It is only in the 1980s that another Japanese poet Setsuo Yazaki, recovered her poetry manuscripts and these were published.

Today, almost a 100 years later, Kaneko's poems remain as fresh and moving with their innocent sense of wonder.

So the fashion gurus have decreed that the colour of the year 2019 is Living Coral which is described as “an animated and life-affirming shade of orange with a golden undertone”. This is the to-go-for colour for clothes and bags and shoes and accessories!

I was amused when I read this, and it also set me musing about my own year of Living Coral as it were.

This was the coral tree that stood just outside my office window and gifted me with hours of delight. For many years it was always there, and we took its comforting presence almost for granted. But one year my window-sharing colleague and I decided that we would look longer and closer at this old friend. We realised that the coral tree itself changed form and colour with the seasons. In the winter the skeleton of bare branches was silhouetted against the blue sky; come February this would transform almost overnight, into a burst of colour with the brilliant orange crimson buds and flowers. And yes, it was indeed life-affirming. The tree became animated with the many visitors that came to feast and fest on the blooms. Drongos and tailor birds, koels and babblers, doves and parakeets—calling, cooing, shrieking, sipping--what a cacophony of exploration and satiation! Occasionally the feathered visitors would hop onto our window sill and gaze curiously at us, the creatures without wings trapped in glass cages. Other winged creatures—butterflies and dragonflies, bees and wasps would flutter and flit within the blooms. But as with all life, it cannot always be Spring. The flowers would dry and shed, and the crimson would be replaced by green pods that soon turned brown. And in that brown nestled the seeds of new life, preparing to reaffirm itself with the cycle of time.

A single tree, a single window and a glorious reaffirmation of life!

Over the year, Pankaj the artist and I tried to capture some of this magic in words and pictures. And a small book *The Coral Tree* was the outcome. Today as I sit at another window, I turn the pages and celebrate that coral tree as a truly living entity.

The company that promotes the annual Colour of the Year describes Living Coral as a colour that “welcomes and encourages light-hearted activity, and the innate need for optimism and joyful pursuits.” I feel somewhat sad that the joyful pursuits may be limited to looking through store windows, and shopping for clothes and accessories to keep up with the fashionistas.

Right through the long and dusty summer months when all the other plants drooped and dried, it was the riot of pink and white bougainvillae in my little garden that bestowed colour and cheer to the sweltering days.

I have always enjoyed the sight of the colourful mass, and took it pretty much for granted until I read an interesting story about how the plant was discovered. In 1766 the French government had commissioned French Navy admiral and explorer Louis Antoine de Bougainville to sail around the

world, to find new territories for France. Accompanying him on this voyage of circumnavigation was Philibert Commerson a botanist, whose brief was to collect hitherto unknown plants from the different continents and countries during the voyage. It is Commerson who is thought to be the first European to describe the plant we know of as bougainvilleae.

Recently, the story of the discovery of bougainvillea has been revised. It turns out that Commerson did go on the voyage and was the botanist. But he was accompanied by his housekeeper and lover, Jeanne Baret. The French navy absolutely and explicitly prohibited women on naval vessels. Nevertheless, Baret disguised herself as a man and not only sailed with Commerson, she was with him while he was exploring plants in the new lands where the ship docked. As Commerson was frequently unwell, it was Baret who did most of the plant collecting, and she is believed to have discovered many of the plants which are attributed as being Commerson's discoveries.

It is now believed that it was probably Baret who found bougainvillea at the very beginning of the trip, in Rio de Janeiro. Impressed by the bright blossoms, Commerson named them *Bougainvillea* after the admiral. Baret also thus became the first woman known to have circumnavigated the globe. Interestingly the surviving journals of the expedition barely mention her, probably due to the fear of the consequences of admitting that the "no women!" rule had been broken.

Since the introduction of the first two species to Europe in the late 1700s, Bougainvillea have made their home all around the tropical world. They are drought-, salt- and wind-resistant, but require hot climate and hours of full sun. They will grow as shrubs, or vines, or even low ground covers and are found in many colours. Currently, there are over 300 varieties of bougainvillea around the world, and since many of the hybrids have been crossed over several generations, it is now difficult to identify their respective origins. Botanists, however, have traced back most of today's rich variety of bougainvillea back to only three of the original eighteen South American species identified.

While the Bougainvillea is popularly known as an ornamental plant, the people of the Amazon region had long used bougainvillea as a medicinal herb, and it is only more recently that its medicinal values are being recognised by other schools of medicine.

There is definitely more to the bougainvillea than colour and cheer!

It's not the flowers that make this plant so colourful, it's actually the bracts or modified leaves that surround the tiny white flowers.

BANANADRAMA

1 November 2018

Guess what is making cricketing news these days? Runs and wickets? Tantrums and tampering? No, it is none other than the good old Banana! It is reported that the Indian team has requested an ample supply of bananas for the team during their 2019 World Cup tour to England. The banana has been designated the "fruit of their choice!"

While the mango always lays claim to being the king of fruits, the solid trustworthy banana is taken much for granted, as it does not make a dashing seasonal appearance and compete for awards of the most varieties and the best of them all!

But, there's more to the banana...

Bananas are both a fruit and not a fruit. While the banana plant is colloquially called a banana tree, it's actually an herb distantly related to ginger, since the plant has a succulent tree stem, instead of a wood one.

Bananas grow in what are known as "hands," so-called because of their appearance, which make up the larger stalk, known as a "bunch."

The banana skin that we peel and throw is, in fact, a fruit because it contains the seeds of the plant. Although since bananas have been commercially grown, the plants are sterile, and the seeds have gradually been reduced to little specs.

The banana plant evolved in the humid tropical regions of S.E. Asia with India as one of its centres of origin. During the seventh century AD its cultivation spread to Egypt and Africa. Carl Linnaeus, an 18th century Swedish botanist whose work led to the creation of modern-day biological nomenclature for classifying organisms was the first person to successfully grow a fully flowered banana tree in the Netherlands.

Today it is grown in more than 150 countries, and it is widely believed there are more than 1,000 types of bananas in the world, which are subdivided into 50 groups. There are at least 300 varieties of banana in India.

Even then, Linnaeus speculated about other uses for the versatile banana such as boiling bananas with sugar to cure anger, mashing bananas with honey to soothe eye inflammation and crushing banana root soaked in milk to alleviate dizziness. Today the banana is an acknowledged as a Superfood by all schools of health from Ayurveda to the trendy Diet and Nutrition experts. From digestive issues to depression...the banana is the panacea for all ills!

The Banana was my father's favourite fruit. He always used to say "*sabse achha kela!*" "Banana is the best". So true...The scientific name for banana is *musa sapientum*, which means "fruit of the wise men."

WHAT IS WILD?

11 October 2018

The first of week of October is marked as wildlife week in India. Wildlife safaris are advertised, with promises of sightings of lions and tigers and elephants.

What about a rethink about what is Wild?

Does it roar, does it growl? Is it beast, fish or fowl?
Inhabit rainforests or snowy peaks? Live in deserts, or the ocean deeps?
Does it have stripes, wear armour? Exotic feathers or thick fur?
Is it whiskered, huge and ferocious? Have claws on its paws, good gracious!
Does it grow wild in forests deep? Tangled in branches where monkeys leap?
That's just where we all go wrong. Thinking wild is a lion or gorilla strong.
What's wild can be large: a blue whale or elephant.
But also teeny weeny: an amoeba, mite or ant.
Wildlife can be insect, reptile or bird. Living alone in a cave, or all in a herd.
It can be the trees in a jungle dark. It can be weeds in a garden or moss in a park.
It is the living things that we have not tamed; As pets in our house, or on farms retained.
That live on their own, as creatures free; In cracks in our homes, or up on a tree.
Lizards, spiders, weeds, rats and snails... Are wildlife as much as tigers or whales.
You don't have to climb mountains or dive very deep. Plunge into dark jungles, or ride miles in a jeep.
There's a wildlife safari you can take any day. Through home or garden or just along the way.
Just keep your eyes open and all your senses alert. Look out for these creatures, even in the dirt.
You'll find the world around teeming with life. From tiny to enormous, you can call it all wildlife!

TOTUM MAIOR SUMMA PARTUM

11 September 2018

Six blind humans once encountered an elephant. Each of them tentatively approached the unknown form that they could neither see nor hear, and each happened to touch a different part of the great beast. They moved their sensitive fingertips across what their hands could reach, and curiously explored.

Meeting together again, each was excited to exchange notes. For what a curious thing this was! What was it called and what purpose did it serve?

The first one said:

"What tree is this that we have chanced upon?

Its trunk just seems to go on and on.

Or is it a pillar thick and round

Solidly planted in the ground?"

The second one shook his head to exclaim:

"Oh no, you are mistaken, friend

It is simply a wall without end.

I just ran my hand from side to side

It is so solid, so firm, broad and wide."

The third person was amazed at such tall tales:

"What do you mean 'so high and strong'?

I assure you that you have got it quite wrong.

It's quite simply a snake, soft, thick and long,

I could feel its breath as it swayed along."

The fourth one was a bit confused now:

"It's true it was long, but I have a doubt,

It wasn't supple nor smooth as you make out.

It was surely a rope you felt my friend

Why, it even had long tassels at the end."

The fifth individual thought the four were quite crazy:

"Imagine, imagining it to be a tree or a wall

Just what has come over you all?

Do snakes or ropes flap like sails on boats?

They were those giant punkhas, like ones in the royal courts."

By now the sixth was convinced that the rest were mad:

"Why are we making wild guesses and playing foolish games?

I know not to what you give different names.

Firm to the touch, sharp at the end; nothing large or loose or long

How could it be anything but a spear sharp and strong?"

And thus each one 'saw' a different sight

And each was convinced that they were right.

Alas the six could only see a part, but never understand

That it all the parts together that made the whole elephant.

"The whole is more than the sum of its parts." Aristotle

I call them Angry Birds! They are continually at war with the world, making their views heard with an incessant grating cacophony of sounds. Their beady eyes glint as they stare angrily at you, and their dusty khakhi-brown feathers are always dishevelled, as if they have just emerged from battle!

They are ubiquitous, making their bedraggled group appearance in the garden, on the sun deck, in the wash area and on the window ledges. They make their presence felt with their incessant quibbling and squabbling. In the morning they are busy poking at the lawn before our first cup of tea. In the afternoon they hop around in the verandah and outside the windows, peering through the glass and rapping sharply with their beaks as if to reprimand us for some misdeed. They are the band of vigilantes—sounding a harsh and strident chorus that makes the intruding cat slink away to safety. They fight like fishwives! Screeching, pecking, pulling, merging into a heaving mass of untidy feathers; and emerging with scrawny bare necks that reveal the wounds of war.

They are the Jungle Babblers or the Seven Sisters as they are called in English, and for some reason, Seven Brothers in some Indian languages.

And I wake up with the comfort of starting the day with them.

Until last week....

My angry birds have disappeared en masse!

At first I thought it may be the grey drizzly weather that we have been having after a long, blazing hot and dry summer that was deterring their forays. Then I thought that maybe they had decided to put in a late appearance; I watched for them morning, noon and evening. Not a straggly feather to be seen! I looked at all their haunts, their favourite foraging patches; the bare branches of the tree at the gate and the wires running overhead, but nary a glint of an eye could I see. I thought maybe they have taken off on vacation, but my bird book tells me that they like their home turf and are not likely to wander far.

How can they all vanish? I haven't a clue!

Will they reappear soon? I do hope so!

Till then, the great babbler mystery continues!

No this does not refer to a House of sleep-deprived MPs at an all-night Parliament debate!

This is what a group of Owls can be called!

The English language has some wild and wonderful names to describe groups of animals or birds. We use some of these collective nouns occasionally when we talk about a Herd of cattle or a Flock of sheep. In school we often had to fill in the blanks or match the following-- a Pride of lions, a School of fish or a Pack of wolves.

I have always been intrigued and fascinated by some of these collective nouns. I think that a Gaggle of Geese sounds just so appropriate, as does an Army of Ants (especially having once been literally attacked and badly bitten a marching regiment of army ants—no joking!).

Here are some delightful feathery ones!

Imagine a Parliament of Owls which includes members from the following:

A Murder of Crows, a Convocation of Eagles, a Deceit of Lapwings, a Ballet of Swans, a Siege of Cranes, a Conspiracy of Ravens, a Company of Parrots, a Murmuration of Starlings and a Flamboyance of Flamingos!

And what about our four-legged friends? Here are some quirky ones!

When Noah invited representatives of all animals onto his Ark, he had to select a pair each from: An Ambush of Tigers, an Array of Hedgehogs, a Bask of Crocodiles, a Bloat of Hippos, a Crash of Rhinos, a Rumpus of Baboons, a Shrewdness of Apes, a Singular of Boar, a Skulk of Foxes, a Sleuth of Bears and a Mob of Kangaroos!

Not to mention the hoppers and slitherers from a Colony of Frogs, a Knot of Toads, a Quiver of Cobras, a Bask of Crocodiles, and even a Culture of Bacteria!

These are only a small taste of the numerous descriptive terms used to describe groups of different kinds, the history of which can be traced back to the Middle Ages in England. The earliest known collection of terms of collective nouns or 'venery' (an archaic term for 'hunting') is in the [Book of Saint Albans](#), a kind of handbook for hunters first published in 1486. Included among chapters was a list of [the Compaynys of Beestys and Fowlys](#), where many of the common terms of venery made their first appearances including pride of lions, flock of sheep and herd of deer.

While serious scientists may not be amused at the attribution of human traits to describe the animal world, for the language lovers, discovering new terms can be great fun.

Even more fun is trying to coin one's own terms! Here are some that I thought of:

A Cacophony of Koels, a Preening of Peacocks, a Menace of Mosquitoes, and a Buzzload of Bumblebees!

PICTURE PERFECT

18 August 2018

In the twilight rain
The brilliant hue of
Hibiscus
A lovely sunset.

INSIDE OUTSIDE

Through the glass, curiously
Little bird looking in
What do you see?
Strange giants pacing within.
Trapped in a cage of steel, stone and wood
And an existence that your kind has not understood.
Harried human looking out
What do I see?
A new life just sprouting wings
A bird made to soar wide and free
In the air and light through the trees and sky.
Grow strong little one, spread your wings and fly
And I will wait for you to sometime come by.

A MAGICAL WALK

21 June 2018

I remember it well—a mere 400 metre walk on our office campus in Ahmedabad. That day we were walking along the path that all of us took regularly; walking along with us was Professor HY Mohan Ram, a member of our Governing Council, who was there for the Council meeting. As we walked,

Professor Mohan Ram talked—gently, softly, but with passion and excitement, pointing out plants that we saw every day, but, as we realised, we never really ‘looked at’.

“Look at this one”, he pointed at a plant, “this is Aduso. Its botanical name is *Adhatoda vasika* which means ‘that which the goat will not touch’. This is what is used for making medicines for cough and cold.” Going just two steps ahead, “You know the cactus, but did you know that there is not a single native cactus in the whole of Asia and Europe? All cactii are from the New World—Mexico, North America and South America.” “Look at this magnificent neem tree. Its botanical name *Azadirachta indica* comes from the Arabic for *azad* meaning ‘free’ and *drakhta* meaning ‘tree’. This is thought to be a tree indigenous to India, but there is some doubt if it is originally Indian. It may have originated on the Burma border and come to Bangladesh from there.” Did you know that Lutyens, when planning the landscaping of Delhi’s roads, planted only native species. Each avenue was planted with one species of fruit tree.” Three steps ahead, we come to the white flower commonly called Chandni. Professor tells us, “Have you noted carefully the arrangement of petals of flowers? Most flower petals are usually in multiples of 3 or 5 (except in the case of the mustard flower).” “Many high school students know this as the shoe flower that they got for dissection in the exams. But why the name shoe flower? Because it is used to polish shoes! Its other name is hibiscus, and is believed to have originated in China.”

Professor HYM had a fascinating story for every step that we took, drawing attention to the tiniest of flowers that we carelessly trampled underfoot, to the towering culms of bamboo. The path that took us 5-7 minutes to traverse became a magical mystery tour that took close to two hours. Through his eyes the blur of vegetation turned into a veritable treasure trove, with each plant glowing with its own special attributes.

Not long after this visit, Meena and I invited Professor HYM to contribute to a collection of tales of ‘Nature Heroes’ that we were putting together. He graciously agreed, and shared with us some of his journey, experiences and inspirations in a piece titled Reflections of a Botanist. He writes “I have not pursued any single course. I have done what interests me and not what is in style. I have a deep interest in Indian classical music and photography.”

He concludes the piece with this, “What enlightenment have I received as a student of plant biology? I wish I could be like a tree: deep-rooted and firmly fixed, bearing a lofty bole and a broad canopy, continuously absorbing, synthesizing and renewing, unmindful of stresses and insults, resilient to changes and perpetually giving.”

In the passing away of Professor HY Mohan Ram the world has lost not only a botanist par excellence, but a loved and respected teacher, researcher, and writer. For us, the Matriarchs, Professor Mohan Ram will always be remembered as a gentle, unassuming guide with a twinkle in his eyes, and a life-long inspiration whose visits to the Centre were like the Open Sesame to a fascinating world of flora.

A page from my notes on the Walk! (Date 22 August 1998)

MANGO

Mango looks like gift-wrapped sunbeams

Mango sounds like 'slurp'

Mango smells like only a mango can

Mango tastes like Kesar (*pick your favourite?!)

Mango feels like one can survive the summer after all!

Ah *Mangifera indica*!

THE UPSIDE-DOWN TREE

5 June 2018

I first saw a Baobab tree in Tsavo National Park, on safari in Kenya. With a huge bulging trunk and branches that looked like roots spreading in a wide canopy, it was unlike any tree I had seen. I was intrigued. As I read more about Africa I found that this tree, which was native to Africa, Madagascar, and Australia, played a significant role not only in the ecology, but equally the folklore of these regions.

Across Africa, there seem to be many stories passed on from generation to generation, that explain why the Baboab looks the way it does. One of the most popular, and my favourite one, goes like this.

The first Baobab grew near a small lake, along with many other trees. One day it saw its reflection in the water, and it was shocked. It saw a huge fat trunk covered in bark that looked like the wrinkled hide of an old elephant; small leaves and pale flowers.

Now this Baobob was a complainer. "Why did you make me so ugly?" it asked the Creator. "Why did you make me so big and fat? Why can't I be tall and slender like the Palm tree?" "Why is my bark so rough and tough? Why can't I have a smooth trunk like the Mahogany tree?" "And such insignificant flowers, why not bright ones like those of the Tulip tree?"

And the Baobab went on whining and complaining, comparing itself to every other tree, and feeling short-changed in every aspect. Until finally the Creator had enough! In a fit of exasperation, he came down and yanked the Baobab up from its roots, and replanted it upside down! No longer could the Baobab see its reflection, and no longer could it compare and contrast!

But the Creator could not be heartless. The vain whiner had to be taught a lesson, but after all this too was one of his own creations! So the Creator gave the Baobab some special features that would make it one of the most valued of trees for countless other living beings, including humans.

This Tree of Life, as it is called by some tribes in Africa, creates its own ecosystem, as it supports the life of countless creatures, from the giant elephants to the thousands of tiny creatures scurrying in and out of its crevices. Weaverbirds nest in its branches and owls and hornbills roost in its hollows; baboons and warthogs devour the seedpods and the fruit; bush babies and fruit bats drink the nectar

and pollinate the flowers. The tree can store hundreds of litres of water in its trunk, an adaptation to the harsh drought conditions of its environment. This water is tapped in dry periods by elephants and Bushmen.

Every part of the tree is valuable for the local communities; its lumber is used for storage, its bark is pounded to make rope, fishnets, mats, baskets, paper and cloth. More recently, its fruit has joined the ranks of international Superfoods--it is known to contain six times as much vitamin C as oranges, twice as much calcium as milk, and plenty of B vitamins, magnesium, iron, phosphorous, and antioxidants.

Baobabs can reach up to 75 feet in height, and the trunk can grow more than 60 feet wide. Humans have used the hollowed trunks for a variety of purposes—from a post office, to a jail, and even a pub!

Baobabs are some of the longest living of trees, believed to live for more than 2000 years! When they do die, they simply rot from the inside and suddenly collapse, leaving a heap of fibres, and so the local belief is that they do not die at all, but simply disappear! No wonder the Bushmen call it the Magic tree!

Some years after I returned from Kenya, we visited Diu, an island just off the coast of Gujarat. As we walked around, we were astonished to come across a Baobab tree! Solidly ensconced in majestic, solitary splendour among the Hoka palms and green fields, it brought back memories of our Safari days! No one seemed to know when and how it came to be there. Thereafter, on our annual Diu trip with the children, we all eagerly looked forward to spending a morning exploring the Baobab. Over the years, as the children grew, it remained a reassuring and comforting presence. This year, the Baobab was introduced by my now-grown daughter to her husband, as an old friend.

SUMMER CINQUAIN

22 April 2018

Ahmedabad April

Hot Dusty

Mango-ripening Dehydrating Enervating

Gulmohar in fiery bloom

Grishma ritu

Let us celebrate every season as it is meant to be, before Climate Change messes them all up! Happy Earth Day!

We are wakened at dawn every day by the melodious duet of the Coucals. The Coucal couple share our little garden, and we watch over each other. The Coucal or Crow Pheasant is a handsome bird; its glossy black body, chestnut wings and long black tail lends it a special dignity and grandeur. After the morning duet of soft whoops and klak-kloks, they join us as we have our morning tea. Sitting amongst orange flowers of the Cordia tree, or flitting across to the Champa tree, they offer a reassuring start to our day. As the day progresses, they descend lower to drink from the water container, as the smaller birds respectfully make way for them. Then as the sun reaches its peak, the omnivorous birds stride confidently across our small patch of lawn, looking for sustenance. Through the rest of the day, they call to each other using an amazing repertoire of calls. We could never have imagined that a single bird could produce such a variety of sounds.

About a month ago we noticed that the Coucal couple were more than usually busy. We saw them flying back and forth all day long, carrying in their beak a strand of the creeper with the white flowers, twigs from the nearby neem tree, long blades of grass and other trailing vegetation. Some days later, having tracked their destination, we discovered that they had made a nest high up in the tangle of our bougainvillea. The nest was very large, and from ground level looked quite messy! Even though we only had a worm's eye view of their new home; there it was, testimony to the well-coordinated effort of our faithful couple. We were honoured that they liked our garden enough to move on from cooing and courting to setting up home! We were not quite sure when Mrs Coucal decided to start her family in her new home. But we watched and waited eagerly, like anxious grandparents-to-be. We hoped that at least one or two eggs had successfully hatched. While we could not follow all that went on in the nest, we were reassured that the parents were assiduously flying back and forth, this time with morsels in their beaks. It was amazing to see how the couple worked relentlessly and in perfect tandem—getting food, keeping an eye on the nest and around, being alert and protective—all the while calling to each other, with gurgling chuckles and raucous croaks.

Then yesterday we heard a rustling in the dry flowers and leaves piled under the bougainvillea. A closer look revealed a tiny little cluster of black and brown feathers fluttering weakly in the undergrowth. The chick had not yet developed wings strong enough to make it back to the nest. We were very concerned, and felt quite helpless as the anxious parents hovered nearby. We prayed, and tried to see how it could be safe. When we did not see it late last evening, we hoped for the best.

Sadly this morning we saw the still little bundle of feathers. Nature had not meant it to grow into a handsome young Coucal, and to share our garden. Today, the Coucals do not call.