

CHAPTER 1

MOUNTAINS AND MONSOONS

THE GEOGRAPHY OF SOUTH ASIA

For thousands of years, the people of Gujarat, an Indian region that borders the Arabian Sea, have mined chalcedony, a kind of pale gray-blue quartz. Whole families pitch in to work the stone that the miners quarry. Imagine a typical girl in such a family living in Khambhat, a small city in Gujarat, today. We'll call her Mani (pronounced "money"). It's a common name in Khambhat, and it means "jewel."

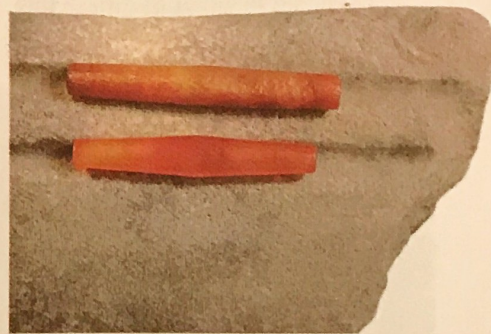
Miners dig pebbles of chalcedony out of deep pits. These lumps of stone are too hard for ordinary tools to shape, so Mani's family leaves them to dry in the sun and then bakes them to make them more brittle and easy to chip into smaller pieces. They put the lumps of rock in earthenware pots that they arrange in a fire pit and then cover with cheap, flammable fuel such as sawdust, rice husks, or dried cow-dung chips. After the fire is lit, Mani helps her father cover the pit with a sheet of iron so nothing can fall into the fire. The pots are left there for a couple of days, until the fire burns out, the ash cools, and the pale chalcedony has been transformed into bright red carnelian.

Mani and her brothers and sisters chip and split the lumps of carnelian into smaller pieces. Then they grind and polish them with an electric grinding wheel. Once they are about the right size, Mani takes the beads to another family whose father drills holes in the beads. After being drilled, the beads are tumbled in a polishing drum with a little water and emery dust (a hard, gritty substance that is sometimes used on nail files) until they are smooth and shiny. Except

“ BEAD-GRINDING
STONE AND
BEADS IN PAKISTAN
AND VALMIKI



Lumps of agate are placed in pots and heated in kiln ovens to prepare them to be made into carnelian beads.



“ Bead-grinding stone with beads, Chanhu Daro, Pakistan, 2600–1900 BCE



Monsoons are welcomed across South Asia, as they end the dry season. But the rains and winds also cause floods and destroy crops.

“Monsoon” comes from the Arabic word *mausim*, which means “season.” Monsoons blow rain inland from the southwest between May and September, and generate winds from the northeast between October and April.

for the electric grinders and polishers, the same tools have been used to make beads like these for thousands of years.

Mani’s whole family helps make beads, but it is not their only work. They have a farm, just like most Indian families who live outside large cities. They work on the beads during their free time, mostly the winter and spring, to make a little extra money. The piles of stones lie undisturbed in July and August, however. That is when the **monsoons** come.

Usually when people use the word “sunny,” they mean something good. But in South Asia, where summer temperatures can get higher than 115° F, dark clouds symbolize happiness. The entire country holds its breath in June, when the earth lies dry and cracked beneath the merciless sun, and the winds are thick with heat and dust. Then, beginning in the south, the clouds build up, and the rain comes.

This is no ordinary rain. An ancient poem by the Indian writer Valmiki called the *Ramayana* describes it this way:

“Dark clouds, heavily laden, floated along, frequently eclipsing the sun, gradually massing themselves like an army of gigantic elephants; thunders rumbled and shook the trees, ripped off their foliage, and scattered it in the air; scoured the earth and sprayed up mud and dust.”

It rains and rains, sometimes for weeks at a time. Farming families have no time for anything but planting and cultivating their crops. Mani and her family fall into bed at night, drenched and exhausted, with no time even to think about the pile of stones waiting in a corner of the courtyard.

People across South Asia dance with joy when the rains come. But after a month of damp skin, flooded houses, and hard work planting muddy fields, they also celebrate when the monsoons leave. Bead making is hard work, too; working with stone leaves Mani's hands bruised and sore, and she sometimes wishes that she lived in the city like her cousins, who have to work in their father's bead shop only after their schoolwork is done.

There was one day, however, when she was glad to be a country girl in Khambhat instead of a jeweler's daughter in Bhuj, a city on the island of Kutch in western Gujarat. On January 26, 2001, India celebrated its 51st anniversary of independence from Great Britain. It was a holiday, so Mani didn't have school. She was in the courtyard, sorting stones before the Independence Day parade started, when the ground began to shake. A minute and a half later, when the earthquake and the screaming were over, many of the modern concrete buildings in the cities in the Gujarat region had collapsed. More than 20,000 people were dead, and more than 600,000 families had lost their homes.

Mani's family was one of the lucky ones. Their house was fine, although it was hard to find clean water and food, and they had no electricity for a long time. But they lived in the country, and made do. Their cousins in Bhuj were not as lucky. They lived in a modern concrete house, which collapsed and took everything they owned.

“ Valmiki, *Ramayana*, 300–200 BCE

In 2001, a huge earthquake in Gujarat, India, killed more than 20,000 people and destroyed many of the area's homes, museums, and monuments.



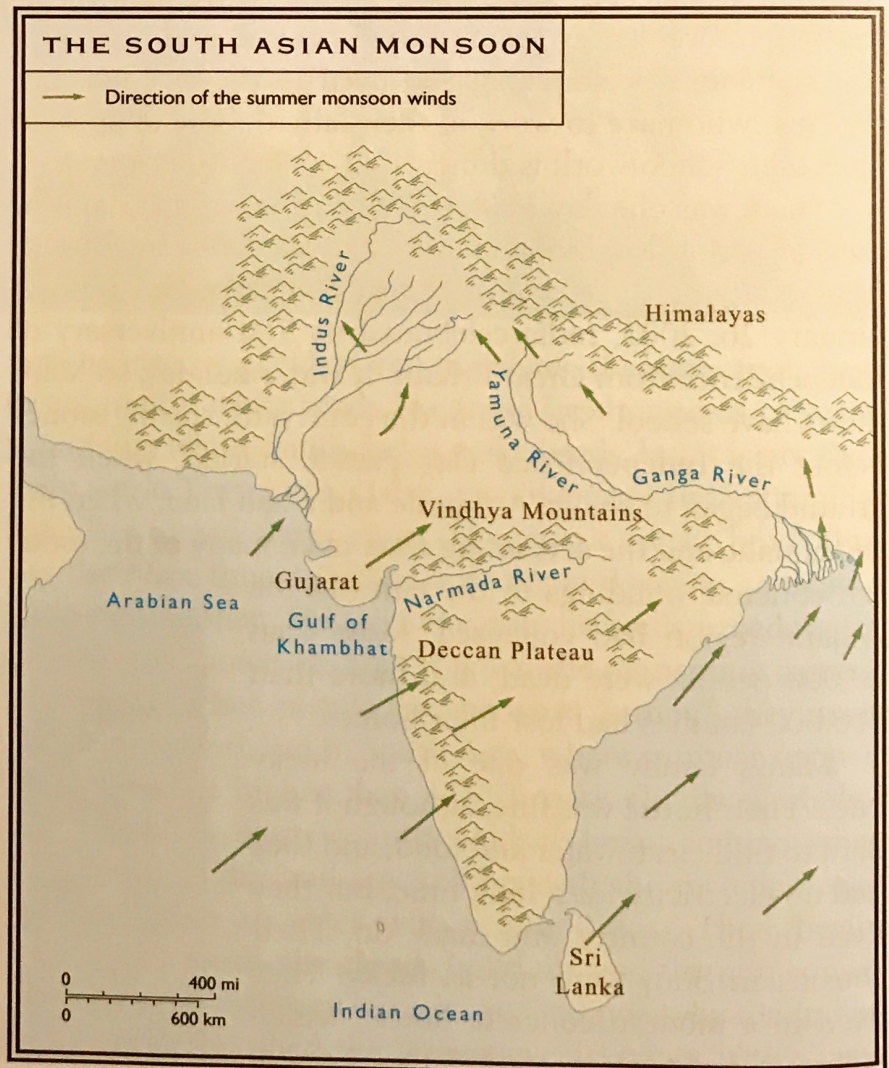
Attack of the Killer Ants

This Greek myth about Indian gold from Arrian's Indika, written in 150 CE, might be based on some truth. Burrowing animals called marmots dig their dens on the banks of the upper reaches of the Indus River. In some places they dig down to a level that has gold-bearing sand, which ends up at the mouth of their burrows.

They get the gold from ants... [that] are larger than foxes... They dig holes in the earth... [and t]he heap which they throw up consists of gold the purest and brightest in all the world... The people arrive at noon, a time when the ants have gone underground, and at once seizing the booty make off at full speed. The ants, on learning what has been done, pursue the fugitives, and overtaking them fight with them till they conquer or die, for of all animals they are the most courageous.

These three parts of South Asian life—the precious stones, and monsoons that enable families like Mani's to make a living, and the earthquake that threatened them—are all connected. The Indian peninsula lies on one tectonic plate, a landmass that floats on the earth's molten core, which is colliding with the larger European and Asian (Eurasian) plate. The extreme pressures and high heat created in the deep layers of the earth's crust make precious metals such as gold and silver as well as colorful crystals such as emeralds, sapphires, rubies, garnets, and diamonds.

Precious stones like lapis lazuli, jade, serpentine and turquoise, as well as metals like copper and tin, are formed in other layers of the earth's crust. As the Indian landmass



crashed against the Eurasian plate millions of years ago, it pushed up the lowest levels of the earth's crust to form the Himalayas, the highest mountains in the world. As the mountains were formed—and they are still growing three to four inches (seven to nine centimeters) a year—the deeply buried layers with valuable metals and rocks were brought up to the surface, where wind and water wear away the earth that covers them.

In the peninsular region, the molten rocks, called lava, escaped through cracks in the crust. As the lava cooled, mineral gases collected and slowly hardened to form chalcedony, a pale gray stone. Chalcedony is harder than the surrounding lava, and over millions of years the softer rock around it wore away, until lumps of chalcedony were washed down the mountains and collected in hollow areas in wide valleys.

Long before there was a city called Khambhat or a region called Gujarat, **Paleolithic** hunter-gatherers collected pieces of chalcedony and chipped them into sharp blades to use for knives, arrow points, and scrapers. By the time of India's first civilization, the Indus civilization of about 2600 BCE, the more settled farmers began to make beads from the chalcedony.

Then as now, people found the beads beautiful and used them as symbols of wealth and power. They were probably used for barter and trade like modern money. A lot of people were buried wearing a few beads, so they may also have been used as amulets, a form of protection from evil. Traders from distant lands came to Gujarat to trade for the stones and eventually many of the beads ended up as far away as Mesopotamia, in present-day Iraq, and the Mediterranean coast. In the days when transportation by boat was faster, simpler, and safer than journeys overland, the Narmada River was the best way to get into India's interior. What's more, protected bays along the coasts of India made it possible to anchor boats large enough to make the sea journey to far away places such as Arabia, Africa, Sri Lanka, and eventually to Southeast Asia and China.

People do not live by beads—or even trade—alone. They also need a dependable food supply. Fortunately for the South

paleo + *lithic* = “old” + “stone”
 During the Paleolithic period, also called the Old Stone Age, humans used stone tools but they did not farm. The period lasted from about 2 million BCE to 10,000 BCE.

Asians, over millions of years, the monsoon rains and hot sun eroded the rocks of the Himalaya Mountains to create the fertile soil of the Indus and Ganges River valleys. These areas are watered by the annual monsoons and also by the rivers. The farmers in the Indus and Ganges plant crops such as wheat, barley, and rice, which require lots of water and regular rainfall.

Basalt is a dark-colored volcanic rock. }

In western and central India, where the monsoons are not as strong, a fine black soil created from soft **basalt** rock helps farming. This soil is especially precious because even when there is only a little rainfall, it can soak up a lot of water and store it for months at a time. In Gujarat and central India, farming communities grow crops such as millet and sorghum, which are cereal grains that grow well in this type of soil. In some regions it is called “black cotton soil,” because cotton grows so well in it.

In the late spring and early summer, a wind begins to blow from the southwest. This wind, the monsoon, brings rain clouds from the Indian Ocean. When these winds and clouds hit land, they dump their first heavy rainfall, making a lush tropical forest that is perfect for growing trees like mahogany and teak, as well as spices such as pepper, nutmeg, cardamom, and ginger.

The Deccan plateau is made of very old volcanic rock and is the middle part of the South Asian subcontinent, south of the Indus and Ganga River valleys. (A plateau is a flat region that is higher than the surrounding land.) }

The now lighter clouds get blown far to the east, leaving much less rainfall in the central **Deccan plateau**. In time they start piling up against the high mountains of the eastern Himalaya, where they begin dumping large quantities of rain. When the winds blow in the opposite direction during the winter monsoon, they pick up a little moisture from the snow-covered mountains and drop a little rain in central India before reaching the Indian Ocean once again.

By the sixth century BCE, sailors had learned that they could go from Sri Lanka to what is now called Indonesia and Thailand using the southwest winds of the summer monsoon. In the winter, when the winds come from the north and east, they could sail back to Sri Lanka. Or, they could use the winter winds to go to the Maldiv Islands, in the Arabian Sea, and then on to East Africa or south to Madagascar. As early as 2600 BCE, sailors used a route that



ran from Gujarat to Oman and the Persian Gulf. When the summer monsoon began, the sailors headed home, coming back in time for the long rainy season that filled the rivers and streams and watered the lush jungles and forests of the subcontinent.

Trying to sum up all of South Asia's different regions—the jungles of the river valleys, the towering mountains in the north, the vast plateaus and deserts of the south—is a lot like the old Indian tale of blind men trying to describe an elephant. The first man feels the elephant's trunk, and says, "An elephant is like a snake." The second feels the elephant's body, and says, "It's not at all like a snake! It's like a wall." The third, who is feeling the tail, thinks both of them are crazy. He knows an elephant is like a rope. Throughout South Asia's long history, billions of people have loved South Asia and called it home. But no one story, no one book, not even one whole lifetime is big enough to learn all of this dramatic land's secrets.

The Indus River flows down from the high Himalayan mountains, bringing water and fertile silt to the land along its banks. South Asia's first civilization grew up along the banks of the Indus.