



A QUEEN-SIZED DREAM

Are You Sure That You Want To Be A Queen As Well?

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Once upon a time, in a land far away, there was a huge kingdom of honeybees called Honeywana. Somewhere in that kingdom a little bee named Buzz had just been born. Now Buzz was too little, but her dreams were too big for a newborn. She wanted to be the Queen bee.

Buzz could not wait to come out of her egg for that was when she would be fed royal jelly, a sumptuous treat made from the finest pollen and nectar. No wonder it was the queen's favourite meal. And when the day finally arrived, Buzz savoured every bit of the food and along with it her queen-sized dream.

But the happiness was short lived for she was soon sealed by another bee with beeswax so she could rest for another 8-10 days and turn into a pupa. "Rest little larvae so that you become a strong worker bee one day and

work for the queen," said the bee as she enclosed Buzz. "No, I want to be the queen," Buzz thought to herself.

Days passed, and soon Buzz was a little pupa. Soon after, she started shedding her skin. This she knew was an indication of development of wings. Her wings paved way for legs and tiny hair. With each phase in her life cycle, she thought herself of being closer to achieving her dream. She would spend endless hours imagining herself sitting on a couch and throwing orders to other bees.

Time flew by. Buzz completed her 21-day cycle and finally came out of her honeycomb. She did not want to waste a single moment and fled straight away to the queen's chambers. Tiptoeing, she made her way through to see what a life of royalty would look like.

She'd imagined finding the queen on a large throne sipping nectar and honey, lazing around. So, when she reached the queen's chambers to find her laying eggs, she was

The science of it

The lifecycle of a honeybee comprises three stages, namely, larva, pupa and adult. It takes around 21 days for the egg to transform into an adult bee who either becomes a worker bee or a queen bee.

quite taken aback. It was not one, not two, not three, but hundreds and thousands of eggs. Buzz let out a gasp. Just then she felt a hand on her shoulder, "Did not imagine your life as a queen to be like this?"

"But...how...how do you know?" was all Buzz could manage to say. "Oh come on! Now don't we all want to be queen bee, lazing on a throne, throwing orders?" Buzz felt as if someone had sneaked inside her brain. "But if we only knew that the queen bee has to lay eggs and more eggs; sometimes even

2000 a day. And that's once she becomes queen, which is not easy considering she has to fight other potential queen bee pupae before she becomes one – too much drama if you ask me," said the other bee.

Buzz was shocked. Bearing eggs that could exceed her own weight was not her dream plan. "Oh! And did I forget to mention that she barely gets to go out? So still want to be the queen?" added the other bee. "No thank you!" said Buzz, and flew away to get to work as a worker bee.



Imaging: Pankaj Mallik, GT Network



SCIENCE
BEDTIME STORIES

It is all in the blood! Not Your Regular Circ(le)ulatory System

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"I am important!" "No, I am" ... statements like these could be heard loud and clear inside the conference room where all the important members of the human circulatory system had gathered for a monthly review meeting supervised by Mr Heart. As soon as Mr Heart entered the room, all the members took their seats quietly and the meeting began...

Erythrocyte: Hi, everyone! I am a cell in the human body, also known as red blood cell, that helps in the transportation of CO₂ and O₂ to different parts of the body. I am produced in the bone marrow and am shaped like a disc with an indentation in the middle. Neutrophil, you go next.

Neutrophil: Ah yes. I am a type of white blood cell, and while I only form 1% of the blood, I play a very important role. Not to be a braggart, but I am in charge of eliminating all bacteria and viruses that enter the body. I am the first line of defense and destroy all the bacterial toxins in the bodily fluids. I am also responsible for boosting the response of other immune cells.

Macrophage: And all neutrophils are wonderful at their job, but your lot cannot defeat me! I am a type of white blood cell that kills microorganisms that cause diseases and removes the dead cells. Also, when I enter the blood vessels, I take the form of monocytes and help in the breakdown of bacteria. I am the largest of all white blood cells and about double the size of a normal red blood cell. In short, I am the mightiest of

them all. I really am!

Eosinophil: Oh, macrophage, how delusional you must be to think that your kind is even comparable with me. I attack and eliminate parasites and cancer cells and help with allergic reactions. In fact, I also physiologically help in organ formation and modulating inflammatory responses!

Platelets: My friends, why are we fighting? We are all equally important! I am the smallest of blood cells; I go around the blood and bind together damaged blood vessels. In my inactive form, I am shaped like plates and in my active form, my formation changes into tentacles and looks like a spider.

Mr Heart: What platelet is saying is right! The circulatory system needs all of you to function. So, stop fighting and get back to work!



A trailblazing DISCOVERY

Rajeshwari Chatterjee, an Indian scientist and academic, was the first woman engineer from Karnataka

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Indian scientist, Rajeshwari Chatterjee was born on January 24 in 1922 and exhibited a temperament for science right from childhood. After her schooling, she graduated in Mathematics from the Central College of Bangalore and then joined Indian Institute of Science (IISc) in the same city in 1943 as a research student in communication engineering. In 1946, she was selected for a scholarship, to pursue higher education abroad and she left for the United States, an accomplishment not even too many men could claim in those days. She went on to study at the University of Michigan and successfully earned her post-doctoral degree from the Department of Electrical Engineering.

After attaining her PhD in 1953, Chatterjee came back to India and applied to work under renowned physicist CV Raman, but it is said that she was rejected because he didn't encourage women students. Chatterjee,



member at IISc in the department of Electrical Communication Engineering, where she taught electromagnetic theory, electron tube circuits, microwave technology, and radio engineering. She got married to Sisir Kumar Chatterjee, another faculty member at IISc, and after their marriage, they together set up a research lab and conducted research on microwave engineering, which was the first of its kind in India. Later, Chatterjee was appointed Chairperson for the Department of Electrical Communication Engineering. She made great contributions to the scientific and engineering communities and served her community as a respected educator. In 1982, she finally retired, but she didn't quit science. She continued to mentor students and worked on social programmes with the Indian Association for Women's Studies, promoting education of women in the field of science and technology. She mentored 20 PhD students, wrote over 100 research papers, and authored seven books.

Women in
STEM
PART IX

however, was on an unstoppable journey of self-discovery and rose to great heights very soon. She went on to become a faculty