UNIT-5
CHAPTER 1: (Science and Curiosity)
Feathered Friend ✍️ by Arthur C. Clarke

About the Chapter : Feathered Friend by Arthur C. Clarke is a story about a canary named Claribel secretly brought to a space station by a man named Sven. Claribel becomes a favorite among the crew and surprisingly saves their lives by warning them of bad air. The story shows how even a small creature can be a big help.

Important Characters :

Narrator : The storyteller and observer of all events on the space station.
Sven Olsen : A skilled construction worker who secretly brings Claribel, the canary to the station.
Claribel : A small yellow canary who adapts to zero gravity and becomes the unexpected hero by warning of danger.
Jim : The duty engineer responsible for the life-support systems, who overlooks a fault in the air purifier.
Jock Duncan : The cook, doctor and dietitian who checks Claribel and tries to revive her.

Chapter Summary :

Part I

The story begins with a reflection: There had never been a need to ban pets in space stations. No one ever imagined someone would bring one and even if rules had existed, Sven Olsen-the kind of man who didn't let rules get in his way-would likely have ignored them.

Sven was a small, thin man who easily fit the 150-pound weight limit for spacemen. His light body was helpful in space, where weight is important. More than that, he was one of the best at a very skilled job-building space station parts in zero gravity. He moved floating beams like a dancer and joined them perfectly, even while wearing a difficult space suit.

Although nobody could quite explain why Sven wanted a pet in space, his choice of a canary named Claribel turned out to be clever. She weighed almost nothing, ate very little and seemed entirely unbothered by zero gravity-unlike most animals.

The narrator first notices Claribel when he hears a mysterious tune in his office and looks up to find a yellow canary calmly hovering in the air. She floated effortlessly, wings tucked and even performed a backward loop before flying off. She had clearly adapted to the environment and didn't waste energy flying unless necessary.

Though Sven didn't admit at first that the bird was his, it quickly became obvious. But by the time he did confess, Claribel had already become a shared pet among the crew. Sven revealed he had smuggled her aboard on his last trip from Earth, partly out of curiosity to observe how a bird would behave in zero gravity.

Claribel's presence was hidden from visiting Earth VIPs. Thanks to the many storage areas and air vents aboard the station, hiding her was easy-though her chirping sometimes caused trouble. Nevertheless, no one imagined that a canary might be living onboard a space station.

Part II

On a day when the crew was working twelve-hour shifts, the narrator wakes up feeling tired, heavy-headed and strangely drowsy. The mess hall is quieter than usual and one seat is empty-Sven's. Soon, they hear that Sven is looking for Claribel, who usually wakes him up with her song.

Sven returns with a sorrowful face, revealing Claribel lying motionless in his hand-a tiny bundle of feathers with claws stiffly raised. The crew gathers around, shocked and confused. Their cook and part-time doctor, Jock Duncan, tries to listen for a heartbeat but can't be sure if she is alive or dead.

One crew member suggests giving her oxygen. They place Claribel inside an emergency face mask, which acts like a full oxygen tent for her size. Miraculously, she revives for a moment, trills briefly and then collapses again. The mystery deepens and no one can understand what's wrong with her.

The narrator starts to remember how canaries were once used in coal mines to detect toxic gas. Suddenly, he connects the dots: something is wrong with the air quality on the space station. He alerts Jim, the engineer, who initially dismisses the concern, claiming their air-quality alarms would have gone off.

Jim's assistant reminds him that the backup alarm circuit had not been connected. Shocked, Jim runs to check the system and returns ten minutes later with a sheepish expression. During the eclipse the previous night, part of the air purifier had frozen and the only working alarm had failed.

The technology worth half a million dollars failed-but Claribel didn't. Her unconsciousness was the only early warning that saved the entire crew from being slowly poisoned by bad air. If not for her, all the men on board might have quietly died in their sleep.

From that day onward, birds on space stations were no longer a joke or a secret. If you ever visit one and hear birdsong, don't be alarmed. It means you are safer protected not just by machines but also by a feathered friend keeping watch over your air.

CHAPTER-2: (Science and Curiosity)

Magnifying Glass ✍️ by Walter De La Mare

About the Chapter : The poem 'Magnifying Glass' by Walter de la Mare shows how a simple magnifying glass can reveal the hidden beauty of tiny things in nature. It tells us that if we observe closely, we can find magic in even the smallest objects around us.

Stanza-wise Explanation

Stanza 1

With this round glass
I can make Magic talk-
A myriad shells show
In a scrap of chalk;

Explanation : The poet says that his round glass or magnifying glass, can perform magic. It can make even a simple piece of chalk reveal tiny hidden shells. Through this glass, ordinary things appear full of surprises.

Stanza 2

Of but an inch of moss
A forest-flowers and trees;
A drop of water
Like hive of bees.

Explanation : A tiny patch of moss looks like a whole forest with flowers and trees when seen through the glass. Even a drop of water seems alive, buzzing like a beehive. The magnifying glass helps us discover amazing details in small things.

Stanza 3

Lie in wait and watch
How the deft spider jets
The woven web-silk
From his spinnerets;

Explanation : The poet tells us to quietly observe how a spider spins its web. The spider shoots out its silk skillfully from its spinnerets. Watching this tiny creature becomes exciting through the lens.

Stanza 4

The tigerish claws he has!
And oh! the silly flies
That stumble into his net
With all those eyes!

Explanation : The spider has sharp claws like a tiger, making it a tiny but fierce creature. Flies, even with many eyes, still get caught in its web. The poet shows how nature can be both beautiful and cruel.

Stanza 5

Not even the tiniest thing
But this my glass
Will make more marvellous
And itself surpass.

Explanation : The poet says that even the smallest objects become wonderful when seen through the glass. The magnifying glass adds magic to everything it shows. It even becomes more marvellous than the things it reveals.

Stanza 6

Yes and with lenses like it,
Eyeing the moon,
I would seem you'd walk there
In an afternoon!

Explanation : Finally, the poet dreams of using lenses to look at the moon. It would feel as if we could walk on the moon in the afternoon. This shows how science and imagination can take us beyond what we see.

CHAPTER-3: (Science and Curiosity)
BIBHA CHOWDHURI: THE BEAM OF LIGHT THAT LIT THE PATH FOR WOMEN IN INDIAN SCIENCE

About the Chapter : This chapter is about 'Bibha Chowdhuri'. India's first woman physicist, who followed her passion for science at a time when women had very few opportunities. She made important discoveries in physics and inspired future generations of women scientists in India.

Important Characters :

Bibha : Chowdhuri The main figure of the story; India's first woman physicist and a pioneer in cosmic ray and particle physics research.

Patrick M.S. Blackett : A Nobel Prize-winning physicist under whom Bibha studied at the University of Manchester.

Erwin Schrödinger : A famous scientist who nominated Bibha for the Nobel Prize in 1950.

Homi J. Bhabha : The father of India's nuclear programme, who selected Bibha as the first woman faculty member at the Tata Institute of Fundamental Research.

Vikram Sarabhai : A key figure in India's space programme, under whom Bibha worked at the Physical Research Laboratory.

Dr. Ritu Karidhal Srivastava : A present-day scientist at ISRO, known as the 'Rocket Woman of India', who led India's space missions and continues the legacy started by pioneers like Bibha.

Chapter Summary :

The chapter begins by celebrating the increasing recognition of Indian women in science, especially in missions like the Mars Orbiter and Chandrayaan-3. However, it reminds us that long before these modern achievements, scientists like Bibha Chowdhuri had already laid the groundwork.

Born in 1913 in Kolkata, Bibha Chowdhuri grew up at a time when education for women was rare. Despite social and cultural restrictions, she was a brilliant and determined student who chose to study science, especially physics, a male-dominated field.

Bibha started her research at the Bose Institute and later studied under Nobel Laureate P.M.S. Blackett at the University of Manchester. Her Ph.D. research on cosmic rays was widely appreciated and even featured in newspapers, an unusual recognition for a woman scientist at that time.

Even though Bibha contributed significantly to the discovery of pi-mesons and was nominated for the Nobel Prize by Erwin Schrödinger in 1950, she remained largely unacknowledged. Her achievements were often overshadowed by her male peers and she received no major awards during her lifetime.

Returning to India in 1949, Bibha was chosen by Homi Bhabha as the first woman faculty member at TIFR. She later worked at major institutions like the Physical Research Laboratory and the Saha Institute of Nuclear Physics. Her research focused on cosmic rays and subatomic particles, often conducted in remote areas like the Kolar Gold Fields. She worked with eminent scientists like Vikram Sarabhai but remained out of the spotlight.

Bibha Chowdhuri died in 1991, her work largely forgotten. However, in recent years, she has received posthumous recognition. A star in the Leo constellation was named after her in 2019 and a chair professorship was created in her name in 2020. She is now remembered as a symbol of brilliance, dedication and quiet strength.

The path Bibha once walked in silence is now being followed loudly and proudly by women like Dr. Ritu Karidhal Srivastava, the 'Rocket Woman of India' and the women of the Chandrayaan-3 team. Their work continues Bibha's legacy of breaking barriers in science.

Bibha Chowdhuri's journey-from being overlooked to being honored as a star in the sky-is both emotional and inspirational. Her life proves that quiet perseverance can lead to great change. She remains a 'beam of light' guiding future generations of women scientists.