

UNIT – I

Travel

Heaven's Gate

Objectives of the Lesson

- Siddharth Pico Ragahvan Iyer shares his travel experiences of Ladakh.
- Description of Ladakh's religion and gompas.
- The culture, heritage and local festivals of Ladakh.
- The revenue and income sources of Ladakh.
- Ladakh crops, cultivation and their varieties of food.
- Development of tourism.
- The contribution of Tourists and foreigners (Norberg-Hodge) and their role in preservation of Ladakhis culture.
- The transformation of Ladakhis life style with the impact of western culture.

Important Points

- Who brought Tantric Buddhism to Tibet? Padmasambhava
- The Indian reformer Padmasambhava belonged to the eighteenth century
- Ladakh is called the highest motorable pass in the world.
- Ladakh borders both Tibet and Pakistan
- Ladakh has been one of the most cosmopolitan posts in the Himalayas for centuries. And through which traders used to transport Silk, Indigo, Gold and Opium
- Tsewang Dorje is a young, urbane travel agency manager, whom the author met in Ladakh.
- Lamp post of Leh says "say no to polythene "
- Ladakh's fashion conscious teenagers are all fluent in every verse of 'Hotel California'

- One day, the author found musicians sitting on the ground among **the poplars**
- **Pico Iyer** said ‘Ladakh is a way to retrieve something lost, sustaining within us that, which once experienced, comes to seem as contemporary, as invigorating, as tomorrow’.

Introduction to the Author

Siddharth Pico Raghavan Iyer was born in Oxford, England in 1957. His parents were Raghavan N, an Oxford philosopher and theosophist and the religious scholar Nandini Nanak Mehta. He is an essayist, novelist and is famously known as a travel writer. Having grown up a part of - and apart from - English, American and Indian cultures, he became the first so-called ‘travel writer’. The Utne Reader named him in 1995 as one of the 100 visionaries who could change your life. He won Guggenheim Fellowship in 2005. He is the author of eight books.

The present piece of prose “Heaven’s Gate” was written by Pico Iyer and extracted from the website (www.travel.nytimes.com) of Newyork Times.

Ladakh is his favourite place. Praising Ladakh, he says ‘ As the great centers of Himalayan Buddhism – Tibet, Nepal, Bhutan – are swept by the winds of change, in the Indian region of Ladakh, ancient temples stand solitary on mountain tops and the traditional ways still thrive.

Question and Answers

Short Question and Answers:

1Q. What animals and trees did the writer find in the Nubra valley?

Ans: Pico Iyer, the author of the Heaven’s Gate, visited Leh, Capital of Ladakh. He is fond of Ladakh people, their culture and life style. He gave a minute description of everything he found unique there. It includes animals, trees, landscapes and old monuments which he noticed as soon as he started. He began his journey on a single-lane road towards the Nubra valley. On his way, he came across various animals, trees, landscapes and old buildings. Marmots scrambled across his path. In the distance, some wild asses, or Kiang were also found. Right behind these, he saw the most pristine and surreal (dream-like) landscape, which he has not seen in his 25 years of life. On every

side of his journey, he found an extended huge flat plain towards snowcaps. The dry riverbeds bisected the emptiness like tears. In a few places, fortresses like two-story buildings were clustered together in the patches of green. In the midst of this silence, apricot trees and willows were also found. He also noticed two-humped Bactrian camels searching for their food in the dunes.

Thus, the author came across animals, trees, landscapes and buildings on his way.

2Q. How did the writer's observations match descriptions he had read of the way people live in Ladakh?

Ans: The author had great affection for Ladakh. Prior to his visit, he heard of Ladakh's culture and their way of living from books and people. He heard that it is the high, dry region in the northern India and also borders Tibet. It is often called 'the world's last Shangri-La' (Imaginary Paradise). He saw there one of the planet's greatest centers of Himalayan Buddhism, which arrived in this region several centuries before it got spread to Tibet.

He further came to know about social life of Ladakh in Andrew Harvey's radiant book 'Journey in Ladakh'. He read that people of Ladakh live as they used to live several centuries ago, in whitewashed houses amid fields of Barley and wheat irrigated by glacial snowmelt. He was all in praises for Ladakh, 'the land of high passes', which was the rarest place which preserves its pastoral existence till today.

3Q. What did the writer discover to his surprise on reaching Ladakh, which he had imagined to have had no contact with other parts of the world?

Ans: Pico Iyer thought that Ladakh would not have any contacts with the rest of the world. When he visited Ladakh, he got surprised and came to know that Ladakh also borders Pakistan. It reminds him of the Indian soldiers who guard their country on the borders in the snow. He also found officially that Ladakh takes in the Muslim region of Kargil. So, about half of its population is Islamic. He elated to know that his favourite place has also been one of the most cosmopolitan trading posts in the Himalayas for centuries. Through this route, traders used to transport silk, Indigo, gold and opium to Kashmir, Yarkand and all the other great caravan stops of the Silk Road.

In this way, the author visited Ladakh with his own thoughts and got surprised with its contacts with other parts of the world.

4Q. What do you think the writer means when he says, 'I saw faces of that spoke of Lhasa, Heart, even Samakand?'

Ans: The words of the writer imply that he saw faces of the people who belonged to places called Lhasa, Heart and Samakand. (i.e. Lhasa is a city and capital of the autonomous region of Tibet. Heart is a city in northwestern Afghanistan, situated on the Hari River. Samarkand is a capital city of Samarkand Oblast, central Uzbekistan, located in the valley of the Zeravshan River and is the oldest city in central Asia).

When the author stepped out on his first day in Leh, he saw faces that spoke of Lhasa, Heart and Samakand. He also interacted with many other people there. Some of them were skullcapped Muslim elders. And some, he learnt belonged to Indo-Iranians, who trace their blue or green eyes to Alexander the Great.

5Q. How do travelers to the 'otherworldly and highly magical' Ladakh affect the people who belong there?

Ans: Ladakh is a tranquil and serene place with beautiful lush green landscapes. It attracts many tourists from different parts of the world. The compact, otherworldly and highly magical Ladakh is the latest treasure to exaggerate its paradoxes of civilization and its discontents. Ladakh's temples which constructed at very high altitude seem to mock gravity. Its kaki-coloured stretches of emptiness with small Buddhist stupas above them and the tree-lined walks out of Leh were more beautiful than any other thing the author had seen in Bhutan or Tibet itself.

He said that its the same wonders and beauty that also brought a new restlessness in the form of development to the Ladakh people. In the process of development, people now fill Leh's narrow streets with construction cranes and reviving Suzukis. It results in their realization of their future lies in a packaging or even abandoning their past of rich cultural and heritage.

6Q. What does the writer tell us to show that while young people in Ladakh's towns prefer western ways of entertainment, people in rural areas continue to enjoy their old, local forms of my music and sports?

Ans: The author experienced both western influence on youth on one side and the other side steps to preserve significance of local forms of music and festivals. On one Saturday evening, he went to the Desert Rain Coffeehouse for an 'Open Mike' night. There he found himself only the foreigner among Ladakh's fashion-conscious teenagers. All of them are fluent in every verse of 'Hotel California'.

The author found that if we walk just ten minutes out of the town, we would find shady rustic lanes. Here people with ancient faces are working in the fields. Some of them found going to temples as if they never heard of Paris (or Paris Hilton). One day, he also found musicians sitting on the ground among the polars, playing at intervals while a team of elegant men in black robes took on a team of elegant men in white in a traditional archery competition. Scores of the

competition are displayed on the blackboard. Each side players dance before and during the competition.

These are some of the contradictory observations of the author in Ladakh, both on the fashion conscious youth in cities and culture conscious people in rural places.

7Q. What are the contributions of the travelers in the development of Ladakh?

Ans: Ladakh is a tranquil and serene place with beautiful lush green landscapes. It attracts many tourists from different parts of the world. Consequently, Ladakh is something of a test case of what good as well as bad that can be brought by the travelers. Most of the travelers committed themselves for the protection of self-sustaining traditional world they have discovered here. One of the first Europeans to settle in Leh, Helena Norberg-Hodge, arrived in 1975. She set up an ecology center and a womans' alliance and a number of other organizations which aim at preserving what is unique in Ladakh before it is gone.

When author visited a womans' alliance, he found its workers busy in constructing what would be the first restaurant here. The purpose of this restaurant is to serve and give life to the real and traditional Ladakhi food. But he was told that it is a difficult task as local ingredients cost more than imported ones these days.

The constructive and protective efforts of tourists like Norberg-Hodge are always worth remembered. Another positive impact is signs flying from the lampposts of Leh stating, 'Say No to Polythene'. Use of plastic bags is also prohibited in town. Even in the airport, the author was greeted with a sign instructing, 'Mindful Tourism', and Pamphlets which imply avoid buying from multinational corporations as they destroy local economies. Discussions are held regularly about developmental activities like tourism in the Woman's alliance.

Thus, most of the tourists who visited Ladakh played an important role to protect Ladakh's culture and heritage besides bringing awareness to Ladakh people to improve their economy.

Haragovind Khorana

Objectives of the Lesson:

- To inspire students from the life and achievements of Haragovind Khorana, a scientist of this golden period.
- To encourage students for continuous learning and life-long research
- To assist students use English flawlessly and appropriately in the contexts of science and Technology.
- To demonstrate how Khorana's contributions play pivotal role in nucleotides
- To explain students how Khorana corroborated Nirenberg's findings that the way to DNA's functions of a new cell
- To show how Khorana synthesizes oligonucleotides, that strings of nucleotides
- To inspire students from an ideal Indian Scientist who won the Nobel prize

Important Points for Objective Paper

1. Khorana was born in a little village **Raipur, part of West Pakistan**, in British India
2. Khorana's date of birth is **unknown** but official documents show it as **9th Jan, 1922**.
3. Khorana's father was a **Patwari, a village agricultural taxation clerk**.
4. Khorana completed his schooling in **D.A.V. High Schol, Multan** (now in Pakistan)
5. **Ratan Lal** was one of his inspiring teachers who influenced him greatly during his schooling.

6. Khorana obtained his **M.Sc.** from **Panjab University.**
7. **Mr. Mahan Singh** was Khorana's great teacher, accurate experimentalist, and his supervisor in Panjab University.
8. Khorana studied his Ph.D from the **University of Liverpool, England**
9. **ROGER J. S. Beer** was Khorana's supervisor in his Ph.D.
10. Khorana spent a year at the Eidgenossische Technische Hochschule in Zurich with **Professor Vladmir Prelog** for doing postdoctoral work.
11. Khorana stayed in Cambridge from **1950 till 1952.**
12. He started his research on **nucleic acids** during the fellowship at the university.
13. Khorana was offered a job by **Dr. Gordon M. Shrum** of British Columbia in 1952.
14. Hargobind later held fellowships and professorships in Switzerland at the Swiss **Federal Institute of Technology** and the **Universities of British Columbia** and **Wisconsin.**
15. Khorana joined **the Institute for Enzyme Research** at the University of Wisconsin In 1960.
16. Khorana corroborated **Nirenberg's findings** in 1960's.
17. Khorana shared the Nobel Prize in **Physiology** and **Medicine** in 1968.
18. Khorana shared the Nobel Prize with **Marshall W. Nirenberg and Robert W. Holley**
19. The three scientists received the Nobel prize in 1968 **for their interpretation of the genetic code and its function in protein synthesis.**
20. They delivered their Nobel lecture on **Dec, 12, 1968.**
21. Khorana made his contribution to **genetics** in 1970.
22. Hargobind Khorana got married in 1952 to **Esther Elizabeth Sibling** who is of **Swiss** origin.
23. Khorana and his team developed **the first artificial copy of a yeast gene**

24. Khorana joined as the faculty of the _Massachusetts Institute of Technology, United States_ as **Alfred P. Sloan Professor of Biology and chemistry**, Emeritus in **1971**.
25. In 1976 Khorana led the team **first synthesized a biologically active gene**
26. Dr. Khorana's invention of oligonucleotides has become indispensable tools in **biotechnology**
27. Khorana showed that some of the **codons** prompt the cell to start or stop the manufacture of proteins.
28. Khorana currently lives in **Cambridge, Massachusetts, United States** as Alfred P. Sloan Professor of Biology and chemistry, Emeritus.

Questions and Answers

1Q. What kind of a job did Khorana's father hold?

Ans: Khorana's father was 'Patwari'. Pawari was a village agricultural taxation clerk in the British India system of government.

2Q. What was his attitude to his children's education?

Ans: Khorana's father had a good attitude to his children. Although they were poor, his father was determined to educate his children. They were the only literate family in Khorana's village, which was inhabited by about 100 people.

3Q. How did the government of India help Hargobind in his studies?

Ans: Khorana lived in India until 1945. During the same time, the government of India fellowship threw an opportunity at him. And it made possible for him to go to England.

4Q. Where and what did Hargobind study after he obtained a fellow ship?

Ans: He studied Ph.D in England at the University of Liverpool. He completed his Ph.D under the supervision of Roger J.S.Beer, who not only supervised his research but also, looked after Khorana sincerely and affectionately. This was a major exposure to western civilization and culture to Khorana.

5Q. What was the role of Dr.Gordon M. Shrum of British Columbia in Khorana's career?

Ans: Dr.Gordon M. Shrum played an important role in the career of Khorana. His career started flourishing when Dr.Gordon M. Shrum of British Columbia, offered him a job in 1952. The British Columbia Research Council offered at that time very little in the form of facilities, but there was a great scope of freedom to do whatever the particular researcher liked to do. During the following years, Dr. Shrum inspired, encouraged and helped Khorana frequently. This apart, Dr. Jack Campbell gave his scientific counsel to Khorana. It resulted in forming a group (consists of Khorana), began to work in the field of biologically interesting phosphate esters and nucleic acid. During this period, Khorana earned many devoted and loyal colleagues. There was one among them, Dr. Gordon M. Tener, who contributed positively to the spiritual and intellectual make up of the group.

6Q. Who are the other two significant people khorana met in Vancouver?

Ans: The two significant people Khorana met in Vancouver were Dr. Shrum and Dr.Jack Campbell. They were his devoted and loyal colleagues of this period. They played a prominent role in his career during that period.

7Q. What did Khorana achieve in the early 1960's?

Ans: Khorana made rapid progress in the early 1960's. He joined the Institute of Enzyme Research at the University of Wisconsin in 1960. During this period, he corroborated Nirenberg's findings the way the four different types of nucleotides are arranged on the spiral 'staircase' of the DNA molecule determines the chemical composition and function of a new cell. Next, the 64 feasible combinations of the nucleotides are read off along along a strand of DNA as required to reproduce the desired amino acids, which are the building blocks of proteins. Khorana supplemented details about which serial combinations of nucleotides from specific amino acids.

He also established that the nuclear code is always transmitted to the cell in groups of three, called codons. Khorana also showed that some of the codons prompt the cell to start or stop the manufacture of proteins.

8Q. Who did Khorana's share the 1968 nobel Prize in Physiology/Medicine with and with what was their work concerned?

Ans; Khorana shared his Nobel Prize in Physiology and Medicine in 1968 with Marshall W. Nirenberg and Robert W. Holley. Their work was concerned with the research that helped to show how the genetic components of the nucleus control the synthesis of proteins. In other words, the research helped to show how the nucleotides in nucleic acids, which carry the genetic code of the cell, control the cell's synthesis of proteins.

Thus, the three scientists received Nobel Prize in 1968 for their interpretation of the genetic code and its function in protein synthesis.

9Q. What were khorana achievements during the 1970's?

Ans: Khorana made a wonderful contribution to Genetics in 1970, when he and his team were able to synthesize the first artificial copy of a yeast gene. Later, in 1971 Khorana joined the faculty of the Massachusetts Institute of Technology as Alfred P. Solan Professor of Biology and Chemistry.

In 1976, Khorana led the team of the first synthesized a biologically active gene. His work paved a way for much of the basis for gene therapy and biotechnology.

He was also the pioneering scientist to synthesize oligonucleotides, that is, strings of nucleotides. These customized pieces of artificial genes are widely used in biology labs for sequencing, cloning and engineering new plants and animals.

Dr. Khorana's invention of oligonucleotides has become indispensable tools in biotechnology. In response to this demand, Dr. Khorana's invention has become mechanized and commercialized to such extent that now one can fax a genetic sequence of choice to one of many mail order companies, and the synthetic gene is shipped in return mail.

These were some of his achievements during 1970's. Thus, he is unique among the scientists of this golden period.

10Q. What kind of a role did Khorana's wife Esther Elizabeth Sibling play in his career?

Ans: Khorana got married in 1952 to Esther Elizabeth Sibling, who is of Swiss origin. They had three children. She was a caring and encouraging lady in his life. She played a very significant role in his life. She has become a great source of strength and support to him. All through his career, she strengthened his sense of purpose. This was especially true during the 6 year absence from his own country of birth. During this stay, Khorana felt out of place everywhere and at home he felt nowhere.