

## CHAPTER **06**

# The Making of a Scientist



**Robert W. Peterson**

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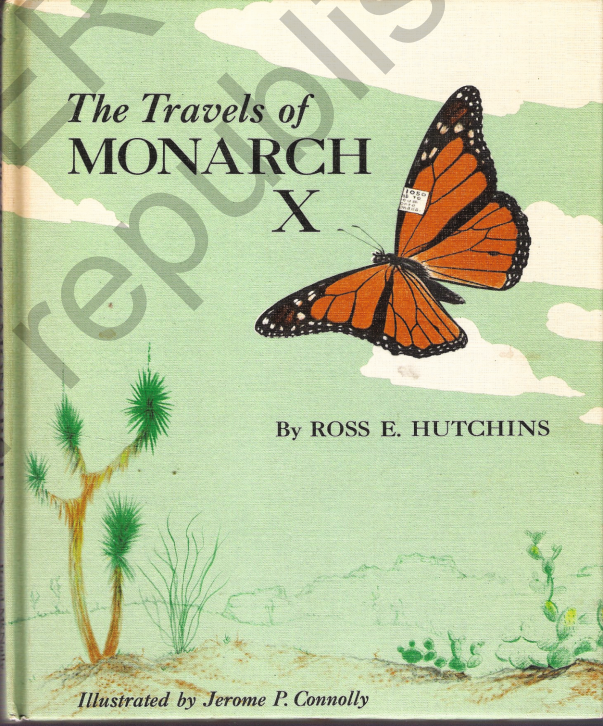
## ABOUT THE AUTHOR

Robert W. Peterson was an American newspaper writer who later became a freelance author of magazine articles and books, especially on the topics of sports and Scouting. He was raised in Warren, Pennsylvania, Peterson played baseball while attending Upsala College. He was a writer and editor with the old New York World-Telegram newspaper, which folded in 1966. Peterson's book, *The Boy Scouts: An American Adventure*, was written in 1984 on the eve of the 75th anniversary of the Boy Scouts of America.

## INTRODUCTION

The chapter "The Making of a Scientist" is a biographical sketch of a renowned scientist, Richard H. Ebright. Richard Ebright was very close to her mother, and she plays a key role in developing his interest in science. He began his journey by collecting butterflies. He later researched the significance of the gold spots on monarch butterfly pupae. It was his fascination for butterflies that opened the world of science to him.

## STORY SUMMARY IN POINTS

- His mother would take him on trips, buy him a telescope, microscope, cameras, mounting materials, and other materials required for learning.
  - When he was in second grade, he had collected all twenty-five species of butterfly found around his hometown.
  - His mother brought him a book named 'The Travels of Monarch X'. The book told him how the monarch butterflies migrate to Central America.
  - The Travels of Monarch X
- 
- Ebright, the only child of his parents, grew up in Reading, Pennsylvania. As he did not have much company in this place, he started taking interest in collecting rocks, fossils and coins.
  - His mother understood her son's aspirations and encouraged him in his learning
  - It was written by Dr. Fredrich Unquhart of the University of Toronto, Canada.
  - The book is about how butterflies migrate to central America

- For Ebright this book opened the world of science for him.
- For his eighth grade project Ebright tried to find the cause of a viral disease that kills nearly all monarch caterpillars every few years.
- The next year he made an experiment to show that the viceroy butterflies copied monarchs. His project got the first prize in the zoology division and third in the country science fair.
- Richard Ebright's study in his second year of high school led to the discovery of an unidentified insect hormone and his novel idea on the lives of cells. This project won first place for zoology at the international fair.
- He got the chance to work at the entomology laboratory of the Walter Reed Army Institute of Research.
- While studying the X-ray photographs of the hormone, he discovered how the cell could read the blueprint of its DNA.
- He graduated from Harvard with the highest honors. Ebright has all the qualities of a good scientist. He had an intelligent brain, high curiosity and desire to win and compete.

## SUMMARY IN HINDI

द मेकिंग ऑफ ए साइंटिस्ट' प्रमुख वैज्ञानिक रिचर्ड एब्राइट की कहानी है। वह अपने जीवन के शुरूआती वर्षों से ही जिज्ञासु बालक थे। उसने बचपन में ही तितलियों को इकट्ठा

करना शुरू कर दिया था और जब तक वह दूसरी कक्षा में था, तब तक वह अपने गृहनगर में पाई जाने वाली सभी 25 प्रजातियों को इकट्ठा कर चुका था। इसके अलावा, उन्होंने सिक्के, जीवाश्म और चट्टानें एकत्र कीं। एक दिन उनकी मां ने उन्हें 'द ट्रेवल ऑफ मोनार्क एक्स' नाम की एक किताब दी। यह पुस्तक जीवन में एक महत्वपूर्ण मोड़ रही है और उन्हें विज्ञान की दुनिया से परिचित कराया। उन्होंने देश विज्ञान मेले में वास्तविक विज्ञान का अनुभव किया और इसके अलावा वे समझ गए कि कुछ जीतने के लिए उन्हें कुछ असाधारण करने की जरूरत है।

बाद में, अपनी आठवीं कक्षा के लिए, उन्होंने वायरल बीमारी के कारण का पता लगाने का कार्य चुना, जिसने हर साल लगभग सभी सम्राट कैटरपिलर को मार डाला। उसने सोचा कि इसका कारण एक भृंग हो सकता है, इसलिए, उसने भृंगों की उपस्थिति के साथ कैटरपिलर उगाए। हालाँकि, वह गलत था। अगले साल विज्ञान मेले के लिए उनकी परियोजना इस सिद्धांत का परीक्षण कर रही थी कि वायसराय तितलियाँ सम्राटों की नकल करती हैं। उनके प्रोजेक्ट को जूलॉजी डिवीजन में पहला और कंट्री साइंस फेयर में तीसरा स्थान मिला।

हाई स्कूल के अपने दूसरे वर्ष में, रिचर्ड एब्राइट ने एक अज्ञात कीट हार्मोन की खोज की, जिससे कोशिकाओं के जीवन पर उनका नया सिद्धांत सामने आया। उसने मोनार्क प्यूपा की पीठ पर छोटे-छोटे सुनहरे धब्बों का उद्देश्य खोजने की कोशिश की। इस परियोजना ने देश के विज्ञान मेले में पहला स्थान हासिल किया और वाल्टर रीड आर्मी इंस्टीट्यूट ऑफ रिसर्च में काम करने का मौका मिला।

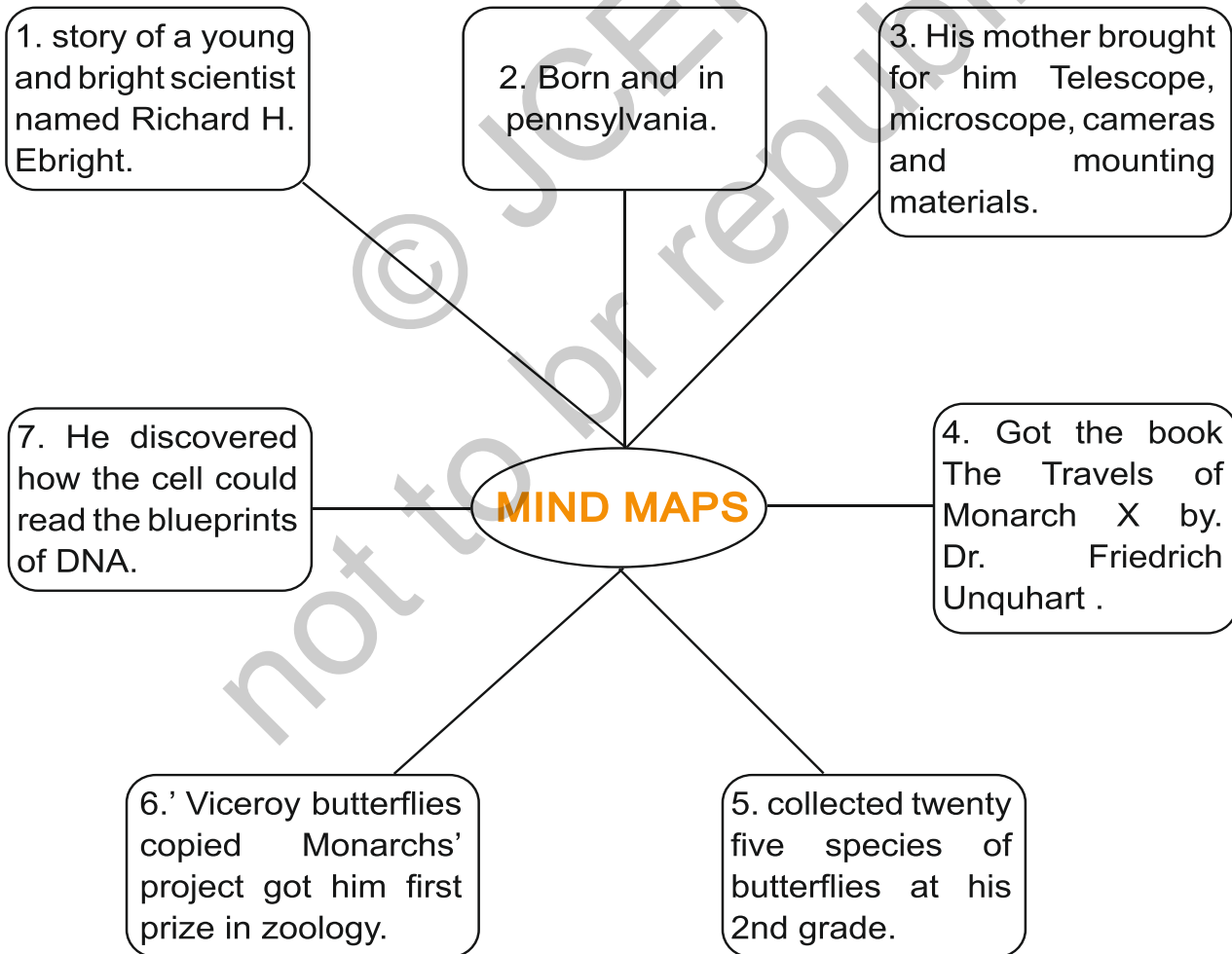
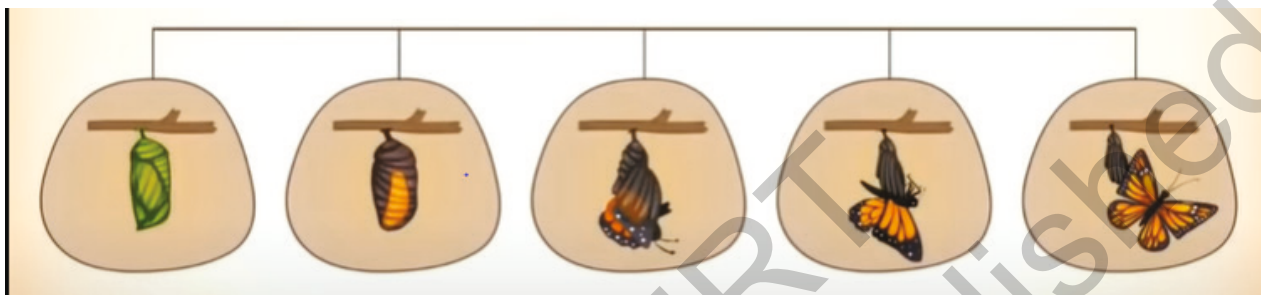
हाई स्कूल के छात्र के रूप में, उन्होंने अपना उन्नत प्रयोग जारी रखा और अंत में हार्मोन रासायनिक संरचना की पहचान करने में



सक्षम थे। एक दिन हार्मोन की एक्सरे तस्वीरों को देखते हुए उन्हें अपने नए सिद्धांत का विचार आया जो बताता है कि कोशिकाएं अपने डीएनए का खाका पढ़ सकती हैं। एब्राइट और उनके रूममेट ने डीएनए की कार्यप्रणाली को स्पष्ट करने के लिए एक अणु के प्लास्टिक मॉडल का निर्माण किया। यह एक बड़ी छलांग थी और एक पत्रिका

में प्रकाशित हुई। उन्होंने हार्वर्ड से सर्वोच्च सम्मान के साथ स्नातक किया।

उनकी अन्य रुचियां भी हैं जैसे सार्वजनिक बोलना, वाद-विवाद करना और एक कैनोइस्ट और एक बाहरी व्यक्ति भी हैं। साथ ही, वह प्रतिस्पर्धी था लेकिन अच्छे अर्थों में और हमेशा अपना सर्वश्रेष्ठ प्रदर्शन करना चाहता था। इसके अलावा, उसके पास एक अच्छा वैज्ञानिक बनने के सभी गुण हैं।





## WORD MEANING

Former	having previously been a particular thing.	भूतपूर्व
Astronomer	an expert in or student of astronomy.	खगोल-विज्ञानी
Migrations	seasonal movement of animals from one region to another.	स्थानांतरगमन
Admire	regard with respect or warm approval.	प्रशंसा
Copy	imitate	प्रतिलिपि
Determination	firmness of purpose	दृढ़ निश्चय
Entomology	science dealing with insects	कीटविज्ञान
Excited	ecstatic	उत्साहित
Fossils	the remains or impression of a prehistoric plant or animal embedded in rocks.	जीवाश्मों
Pupa	early stage of a butterfly	प्यूपा
Tedious	too long, slow, tiresome or monotonous.	थकाऊ
Zoology	the scientific study of the behavior, structure, physiology, and distribution of animals.	प्राणि विज्ञान

## MCQ

1. "It was his fascination for \_\_\_\_\_ that opened the world of science to him."

- (a) cats (b) dogs  
(c) birds (d) butterflies

**Ans. (D)**

2. What qualities did Richard possess?

- (a) inquisitive  
(b) intelligent

(c) will to win

(d) all of them

**Ans. (D)**

3. How many gold spots were there on a Monarch pupa?

- (a) 10 (b) 15  
(c) 11 (d) 12

**Ans. (D)**

4. At the age of — Richard H Ebright surprised the world by explaining the theory on how cells work.

- (a) 22                      (b) 15  
(c) 32                      (d) 20

**Ans. (A)**

5. Which butterflies were not eaten by birds?

- (a) viceroy  
(b) monarch  
(c) all of the above  
(d) none of the above

**Ans. (B)**

6. Who is the writer of the story "The Making of a Scientist"?

- A) HG Wells  
B) Robert W. Peterson  
C) Ruskin Bond  
D) Guy De Maupassant

**Ans. (B)**

7. How did his mother help him?

- A) took him on trips  
B) bought him telescopes and microscopes  
C) encouraged him to learn  
D) all of the above

**Ans. (B)**

8. "\_\_\_\_\_ is the blueprint for life"

- A) cells

- B) DNA  
C) both of these  
D) none of the above

**Ans. (B)**

9. Where did he graduate from?

- A) Oxford  
B) Yale  
C) Harvard  
D) none of the above

**Ans. (C)**

10. Which book did his mother give him?

- A) Travels of Monarch X  
B) Travels of Viceroy X  
C) Travels of Viceroy Y  
D) Travels of Monarch X

**Ans. (A)**

11. Where did Richard grow up?

- A) Pennsylvania  
B) Chicago  
C) New York  
D) London

**Ans. (A)**

## QUESTION AND ANSWER

1. How did a book become a turning point in Richard Ebright's life ?

Ans. The book 'The Travels of Monarch X' opened the world of science for Richard. After reading it he became interested in tracking the migration of butterflies. This interest led to his other projects and experiments. Finally, he became a great scientist.

2. How did his mother help him?

Ans. Richard's mother proved to be a great help. She took him on trips and bought scientific equipment for him. She spent all her time setting up challenges for him. This helped him to learn a lot. She presented him with the book 'The Travels of Monarch X'. The book changes Richard's life forever.

3. What experiments and projects does he then undertake?

Ans. He experiments to find out what causes the viral disease that kills nearly all monarch caterpillars. He undertakes a project to test the theory that viceroy butterflies copy monarchs to survive.

4. What lesson does Ebright learn when he does not win anything at a science fair?

Ans. Ebright learns a lesson that the real experiments would win him a prize. It was not simply a neat display of things. The real

experiments showed things clearly and proved the point. The subject he knew was about insect work. He had been carrying this work in the past several years.

5. How did 'The Travels of Monarch X' prove a turning point in his life?

Ans. Richard was bored with collecting butterflies. At this time, his mother got the book 'The Travels of Monarch X' for him. After reading the book, he studied the migration of butterflies and it opened the world of science to him.

6. Richard's mother had a great influence on him. Discuss. Or Discuss the role of Ebright's mother in making him a scientist.

Ans. Richard's mother played a huge role in making him a great scientist. She would take him on trips to encourage learning. He was a single child. After his father died, his mother made him the focus of her life. She would buy him all kinds of microscopes, telescopes and other equipment. After dinner, she gave him problems to solve. This helped Richard to learn a lot. She was his only companion for a long time. It was his mother who got him the book 'The Travels of Monarch X'. This book opened the world of science for Richard. She also wrote to Dr Urquhart to guide her son. The scientist helped



Richard and guided him. Thus, his mother actually shaped him into an extraordinary scientist.

7. Dr Urquhart contributed significantly to Ebright's growth as a scientist. Explain

Ans. Richard had become bored with collecting butterflies. His mother got him a book on the migration of butterflies. Richard came in contact with Dr Urquhart through the book. Dr Urquhart directed him to study the migration pattern of butterflies.

When he did not win any prize in the science fair in seventh grade,

he again wrote to Dr Urquhart to guide him. The scientist gave him many suggestions for new experiments. Richard performed these experiments throughout his high school and won many prizes. Later, he worked on why bright spots are found on a monarch pupa, motivated by Dr Urquhart. It led to the discovery of a new hormone. The discovery of this new hormone further led to an important theory. The theory was about how cells read their DNA. In this way Dr Urquhart proved to be his true mentor.