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Class-X

English

Footprints without Feet

Chapter-6



Robert W. Peterson

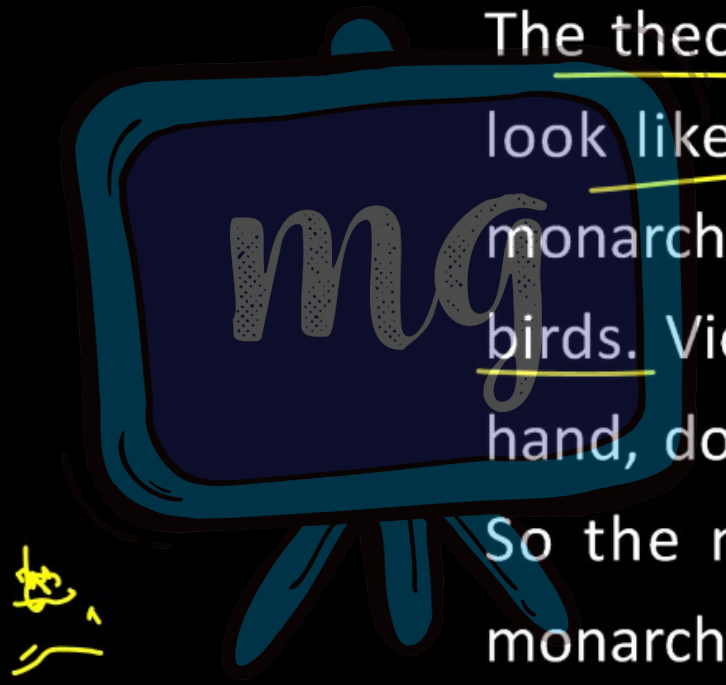
The Making of a Scientist

Part - 2

Neha Rajvanshi

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The theory was that viceroys look like monarchs because monarchs don't taste good to birds. Viceroys, on the other hand, do taste good to birds. So the more they look like monarchs, the less likely they are to become a bird's dinner.

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Ebright's project was to see whether, in fact, birds would eat monarchs. He found that a starling would not eat ordinary bird food. It would eat all the monarchs it could get. (Ebright said later research by other people showed that viceroys probably do copy the monarch.)

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Zoology : जन्तु विज्ञान

This project was placed first in the zoology division and third overall in the county science fair.

In his second year in high school, Richard Ebright began the research that led to his discovery of an unknown insect hormone.

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Assumed : अनुमान लगाना
Ornamental : सजावटी



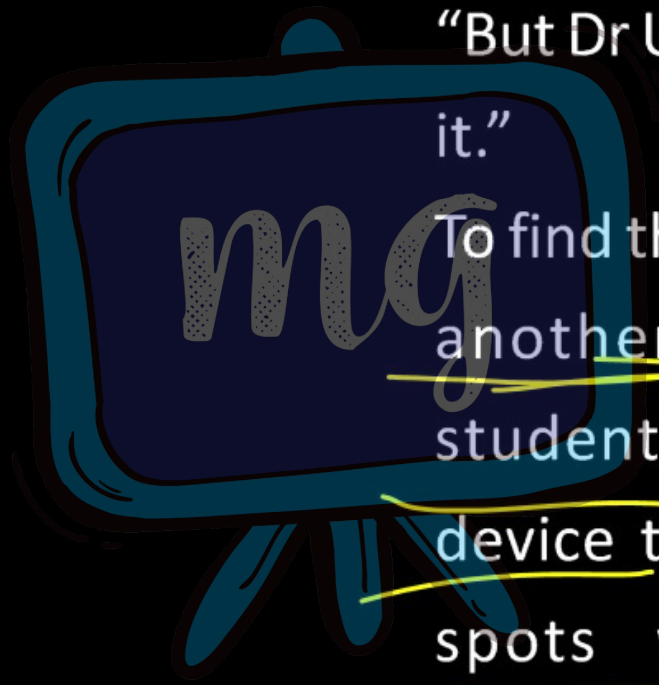
Indirectly, it also led to his new theory on the life of cells.

The question he tried to answer was simple: What is the purpose of the twelve tiny gold spots on a monarch pupa?

"Everyone assumed the spots were just ornamental," Ebright said.

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"But Dr Urquhart didn't believe it."

To find the answer, Ebright and another excellent science student first had to build a device that showed that the spots were producing a hormone necessary for the butterfly's full development.

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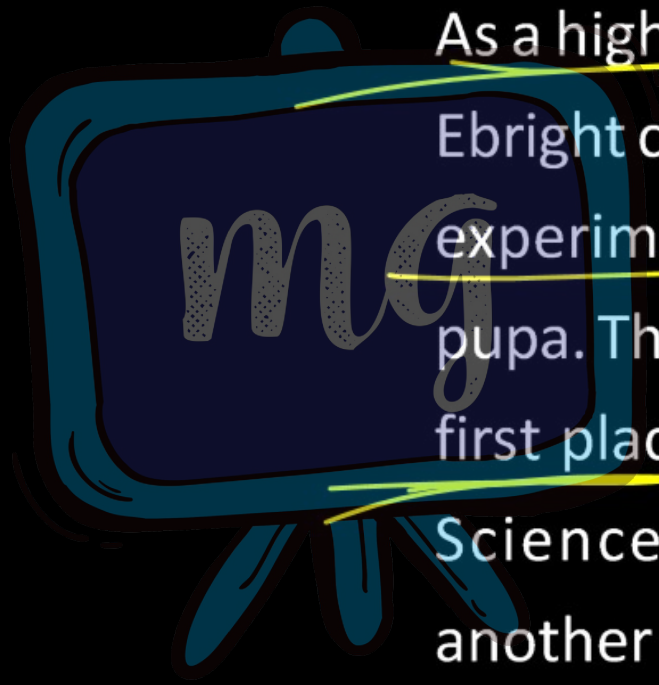
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Entomology : कीट विज्ञान

This project won Ebright first place in the county fair and entry into the International Science and Engineering Fair. There he won third place for zoology. He also got a chance to work during the summer at the entomology laboratory of the Walter Reed Army Institute of Research.

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As a high school junior, Richard Ebright continued his advanced experiments on the monarch pupa. That year his project won first place at the International Science Fair and gave him another chance to work in the army laboratory during the summer.

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Culture : संवर्धन

In his senior year, he went a step further. He grew cells from a monarch's wing in a culture and showed that the cells would divide and develop into normal butterfly wing scales only if they were fed the hormone from the gold spots.

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That project won first place for zoology at the International Fair. He spent the summer after graduation doing further work at the army laboratory and at the laboratory of the U.S. Department of Agriculture.

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The following summer, after his freshman year at Harvard University, Ebright went back to the laboratory of the Department of Agriculture and did more work on the hormone from the gold spots.

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Sophisticated : आधुनिक और जटिल

Using the laboratory's sophisticated instruments, he was able to identify the hormone's chemical structure.

A year-and-a-half later, during his junior year, Ebright got the idea for his new theory about cell life.

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Eureka : खुशी से चिल्लाना

It came while he was looking at X-ray photos of the chemical structure of a hormone. When he saw those photos, Ebright didn't shout, 'Eureka!' or even, 'I've got it!' But he believed that, along with his findings about insect hormones,

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Blueprint : कार्य योजना

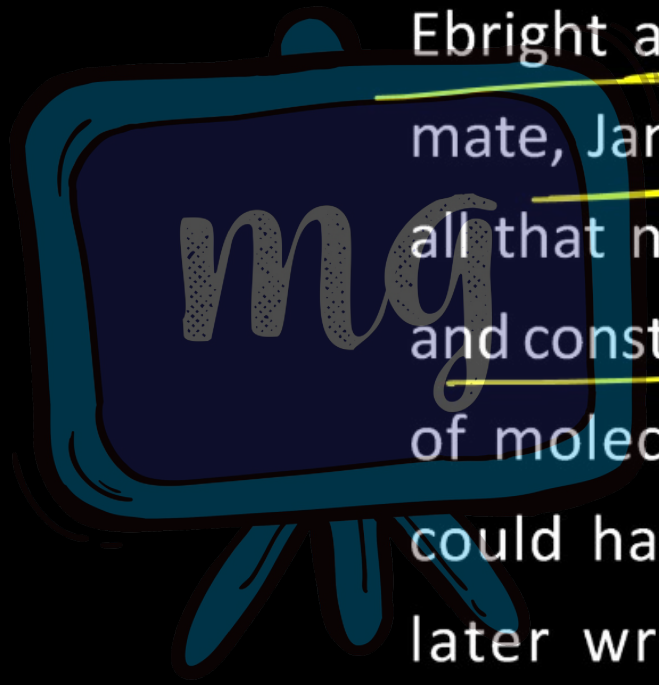


the photos gave him the answer to one of biology's puzzles: how the cell can 'read' the blueprint of its DNA. DNA is the substance in the nucleus of a cell that controls heredity. It determines the form and function of the cell. Thus DNA is the blueprint for life.

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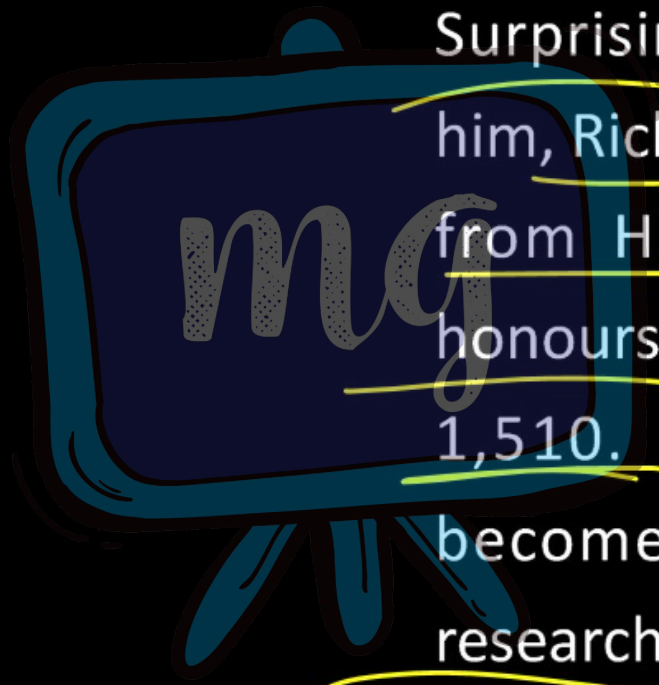




Ebright and his college room-mate, James R. Wong, worked all that night drawing pictures and constructing plastic models of molecules to show how it could happen. Together they later wrote the paper that explained the theory.

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Surprising no one who knew him, Richard Ebright graduated from Harvard with highest honours, second in his class of 1,510. Ebright went on to become a graduate student researcher at Harvard Medical School. There he began doing experiments to test his theory.

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If the theory proves correct, it will be a big step towards understanding the processes of life. It might also lead to new ideas for preventing some types of cancer and other diseases. All of this is possible because of Ebright's scientific curiosity.

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His high school research into the purpose of the spots on a monarch pupa eventually led him to his theory about cell life. Richard Ebright has been interested in science since he first began collecting butterflies — but not so deeply that he hasn't time for other interests.

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Ebright also became a champion debater and public speaker and a good canoeist and all-around outdoors-person. He is also an expert photographer, particularly of nature and scientific exhibits.