

Directions: In this section, you are going to read a passage with ten statements attached to it. Each statement contains information given in one of the paragraphs. Identify the paragraph from which the information is derived. You may choose a paragraph more than once. Each paragraph is marked with a letter. Answer the questions by marking the corresponding letter on **Answer Sheet 2**.

A Pioneering Woman of Science Re-Emerges after 300 Years

- A) Maria Sibylla Merian, like many European women of the 17th century, stayed busy managing a household and rearing children. But on top of that, Merian, a German-born woman who lived in the Netherlands, also managed a successful career as an artist, botanist, naturalist and entomologist(昆虫学家).
- B) "She was a scientist on the level with a lot of people we spend a lot of time talking about," said Kay Etheridge, a biologist at Gettysburg College in Pennsylvania who has been studying the scientific history of Merian's work. "She didn't do as much to change biology as Charles Darwin, but she was significant."
- C) At a time when natural history was a valuable tool for discovery, Merian discovered facts about plants and insects that were not previously known. Her observations helped dismiss the popular belief that insects spontaneously emerged from mud. The knowledge she collected over decades didn't just satisfy those curious about nature, but also provided valuable insights into medicine and science. She was the first to bring together insects and their habitats, including food they ate, into a single ecological composition.
- D) After years of pleasing a fascinated audience across Europe with books of detailed descriptions and life-size paintings of familiar insects, in 1699 she sailed with her daughter nearly 5,000 miles from the Netherlands to South America to study insects in the jungles of what is now known as Suriname. She was 52 years old. The result was her masterpiece, *Metamorphosis Insectorum Surinamensium*.
- E) In her work, she revealed a side of nature so exotic, dramatic and valuable to Europeans of the time that she received much acclaim. But a century later, her findings came under scientific criticism. Shoddy(粗糙的) reproductions of her work along with setbacks to women's roles in 18th- and 19th-century Europe resulted in her efforts being largely forgotten. "It was kind of stunning when she sort of dropped off into oblivion(遗忘)," said Dr. Etheridge. "Victorians started putting women in a box, and they're still trying to crawl out of it."
- F) Today, the pioneering woman of the sciences has re-emerged. In recent years, feminists, historians and artists have all praised Merian's tenacity(坚韧), talent and inspirational artistic compositions. And now biologists like Dr. Etheridge are digging into the scientific texts that accompanied her art. Three hundred years after her death, Merian will be celebrated at an international symposium in Amsterdam this June.
- G) And last month, *Metamorphosis Insectorum Surinamensium* was republished. It contains 60 plates(插图) and original descriptions, along with stories about Merian's life and updated scientific descriptions. Before writing *Metamorphosis*, Merian spent decades documenting European plants and insects that she published in a series of books. She began in her 20s, making textless, decorative paintings of flowers with insects. "Then she got really serious," Dr. Etheridge said. Merian started raising insects at home, mostly butterflies and caterpillars. "She would sit up all night until they came out of the pupa(蛹) so she could draw them," she said.

- H) The results of her decades' worth of careful observations were detailed paintings and descriptions of European insects, followed by unconventional visuals and stories of insects and animals from a land that most at the time could only imagine. It's possible Merian used a magnifying glass to capture the detail of the split tongues of sphinx moths(斯芬克斯飞蛾) depicted in the painting. She wrote that the two tongues combine to form one tube for drinking nectar(花蜜). Some criticized this detail later, saying there was just one tongue, but Merian wasn't wrong. She may have observed the adult moth just as it emerged from its pupa. For a brief moment during that stage of its life cycle, the tongue consists of two tiny half-tubes before merging into one.
- I) It may not have been ladylike to depict a giant spider devouring a hummingbird, but when Merian did it at the turn of the 18th century, surprisingly, nobody objected. Dr. Etheridge called it revolutionary. The image, which also contained novel descriptions of ants, fascinated a European audience that was more concerned with the exotic story unfolding before them than the gender of the person who painted it.
- J) "All of these things shook up their nice, neat little view," Dr. Etheridge said. But later, people of the Victorian era thought differently. Her work had been reproduced, sometimes incorrectly. A few observations were deemed impossible. "She'd been called a silly woman for saying that a spider could eat a bird," Dr. Etheridge said. But Henry Walter Bates, a friend of Charles Darwin, observed it and put it in a book in 1863, proving Merian was correct.
- K) In the same plate, Merian depicted and described leaf-cutter ants for the first time. "In America there are large ants which can eat whole trees bare as a broom handle in a single night," she wrote in the description. Merian noted how the ants took the leaves below ground to their young. And she wouldn't have known this at the time, but the ants use the leaves to farm fungi(菌类) underground to feed their developing babies.
- L) Merian was correct about the giant bird-eating spiders, ants building bridges with their bodies and other details. But in the same drawing, she incorrectly lumped together army and leaf-cutter ants. And instead of showing just the typical pair of eggs in a hummingbird nest, she painted four. She made other mistakes in *Metamorphosis Insectorum Surinamensium* as well: not every caterpillar and butterfly matched.
- M) Perhaps one explanation for her mistakes is that she cut short her Suriname trip after getting sick, and completed the book at home in Amsterdam. And errors are common among some of history's most-celebrated scientific minds, too. "These errors no more invalidate Ms. Merian's work than do well-known misconceptions published by Charles Darwin or Isaac Newton," Dr. Etheridge wrote in a paper that argued that too many have wrongly focused on the mistakes of her work.
- N) Merian's paintings inspired artists and ecologists. In an 1801 drawing from his book, *General Zoology Amphibia*, George Shaw, an English botanist and zoologist, credited Merian for describing a frog in the account of her South American expedition, and named the young tree frog after her in his portrayal of it. It wouldn't be fair to give Merian all the credit. She received assistance naming plants, making sketches and referencing the work of others. Her daughters helped her color her drawings.
- O) Merian also made note of the help she received from the natives of Suriname, as well as slaves or servants that assisted her. In some instances she wrote moving passages that included her helpers in descriptions. As she wrote in her description of the peacock flower, "The Indians, who are not treated well by their Dutch masters, use the seeds to abort their children, so that they will not become slaves like themselves. The black slaves from Guinea and Angola have demanded to be well treated, threatening to refuse to have children. In fact, they sometimes take their own lives because they are treated so badly, and because they believe they will be born again, free and living in their own land. They told me this themselves."

P) Londa Schiebinger, a professor of the history of science at Stanford University, called this passage rather astonishing. It's particularly striking centuries later when these issues are still prominent in public discussions about social justice and women's rights. "She was ahead of her time," Dr. Etheridge said.

36. Merian was the first scientist to study a type of American ant.

37. The European audience was more interested in Merian's drawings than her gender.

38. Merian's masterpiece came under attack a century after its publication.

39. Merian's mistakes in her drawings may be attributed to her shortened stay in South America.

40. Merian often sat up the whole night through to observe and draw insects.

41. Merian acknowledged the help she got from natives of South America.

42. Merian contributed greatly to people's better understanding of medicine and science.

43. Merian occasionally made mistakes in her drawings of insects and birds.

44. Now, Merian's role as a female forerunner in sciences has been re-established.

45. Merian made a long voyage to South America to study jungle insects over three centuries ago.