

For Teachers: Please have the students read the sentences one at a time and correct their pronunciation of each sentence then have them repeat after you. Wait until after they read the sentence (use the number in place of the missing word) to have the students choose the correct answer to fill in the blank. When the students finish the article, move on to the further questions.

日本語訳なしタイプ B もございます。スクロールダウンするとございますので好きな方をご利用下さい。

3[A] – Leprosy and Armadillos



AP1E 11-2

- ハンセン病 (びょう) 古代 (こだい) の 伝染病 (でんせんびょう)
1. **Leprosy** has been feared since **ancient** times. This **infectious disease** attacks the **nerves** and can **cause** **blindness** and the **loss** of feeling in the hands and feet. Leprosy was widely considered to be an inherited disease until 1873, when Norwegian researcher G.A. Hansen identified the bacterium responsible for it: *Mycobacterium leprae*. His discovery laid the foundation for scientific research into the disease and the development of a treatment for humans. Initial attempts to cultivate *M. leprae* in the laboratory, however, only yielded small amounts, which prevented any useful research from being carried out.
- 冒 (おか) す 神経 (しんけい) 引 (ひ) き起 (お) こす 盲目 (もうもく) の 喪失 (そうしつ) 感覚 (かんかく) 遺伝性疾患 (いでんせいしっかん) ノルウェー人 (じん) 研究者 (けんきゅうしゃ) 細菌 (さいきん) ~の原因 (げんいん) である マイコバクテリウム・レプレ、らい菌 据 (す) える 基礎 (きそ) 開発 (かいはつ) 治療法 (ちりょうほう) 最初 (さいしょ) の 試 (こころ) み 改良 (かいるよう) する 実験室 (じっけんしつ) 生 (しょう) じた 妨 (さまた) げた 遂行 (すいこう) させること

Further Questions&A

*Ask student to answer the question on their own at first. If the student can't answer correctly, have him look at the last page and read the "example answer" for the question. Have the student try to memorize the answer, if it's too long or difficult, you should divide the sentence into 2 or 3 parts to make it easier to remember. Once they have memorized the answer, the teacher should ask the question one last time so that the student can practice answering. Also if you find any mistakes, please mark the page and let me know ASAP.

- 1) What symptoms are caused by Leprosy? 症状 (しょうじょう) びょう によってどんな 症状 (しょうじょう) が引き起こされますか。
- 2) What did G.A. Hansen identify in 1873? 1873年に G.A. Hansen は何を突きとめましたか。 見極 (みきわ) めた ~の原因 (げんいん) であって
- 3) He identified the bacteria responsible for leprosy.

8. In the late 1960s, an American biochemist named Eleanor Storrs tried cultivating *M. leprae* in the nine banded armadillo, a mammal common in the southern United States. She knew that in humans, *M. leprae* thrives in cooler extremities such as toes and fingers. Because the body temperature of the nine-banded armadillo is lower than that of humans, she thought they would be a good breeding ground for the bacterium. Furthermore, nine-banded armadillos give birth to four genetically identical young, a fact Storrs knew would be useful when conducting experiments to compare the condition of diseased and healthy animals.
- 生化学者 (せいかがくしゃ) 培養 (ばいよう) すること コノオビアルマジロ 哺乳動物 (ほにゅうどうぶつ) 体温 (たいおん) 末端 (まつたん) 温床 (おんしょう) さらに ~を生 (う) み出 (だ) す 遺伝子的 (いでんしてき) に 同一 (どういつ) の 行 (おこな) うこと 実験 (じっけん) 病气 (びょうき) の

Further Questions&A



11. **3) Why were the bodies of armadillos a good breeding ground for bacterium?**

12. アルマジロの体はなぜ細菌の温床となりましたか。

13. *It was a good breeding ground because their body temperatures are lower than that of humans.*

14. **4) What is unusual about the young of nine-banded armadillo?**

15. 若いココノオビアルマジロはどんな点が珍しいですか。

16. *They give birth to four genetically identical young.*

17. Storrs found that nine-banded armadillos injected with *M. leprae* developed infection resulting in large numbers of the bacterium. Over the next 25 years,

researchers studied bacteria taken from infected nine-banded armadillos to learn more about leprosy. A major breakthrough

eventually came when a substance called lepromin was produced. When injected, lepromin causes a skin reaction in those infected with *M. leprae*. If

diagnosed in this way at an early stage, leprosy is now curable with long-term treatment using a combination of antibiotics.

Further Questions&A



20. **5) What happened when the nine-banded armadillo were injected with *M. leprae*?**

21. *They developed an infection resulting in large numbers of the bacterium.*

22. **6) What was the result of 25 years of study of bacteria taken from the armadillo?**

23. 25年にわたるアルマジロから採取された細菌の研究結果は何でしたか。

24. *A substance called lepromin was produced.*

25. Thanks to the development of easy diagnosis methods and effective treatment, cases of leprosy worldwide have dropped dramatically. Unfortunately, many of the 200,000 or so people who still become infected each year fail to be

diagnosed and receive medication before the disease causes permanent damage because they live in poor and difficult-to-reach areas of the world.

Further Questions&A



27. **7) What has happened thanks to the development of easy diagnosis methods?**

28. 簡易な診断法の開発により、どうなっていますか。

29. *The cases of leprosy worldwide have dropped dramatically.*

30. **8) Why can't many of the people infected each year be diagnosed and receive medication?**

31. なぜ各年の感染者の多数は診断されず、薬物治療も受けられないのですか。

32. *They live in poor and difficult-to-reach areas of the world.*

33. *Choose the correct answer from these choices. 

34. (32) What was G.A. Hansen's contribution to the fight against leprosy?

35. ハンセン病と戦う G.A.ハンセンはどんな貢献をしましたか。

36. 1. He made it possible to test treatments for leprosy by growing large amounts of *M. leprae* in the lab.

37. 2. He developed a way to reduce the severity of nerve damage in leprosy sufferers.

38. 3. He discovered that leprosy was actually an acquired disease caused by one specific bacterium.

39. 4. He reduced the public's fear of leprosy by showing the disease was, in fact, not usually infectious.

40. (33) One reason nine-banded armadillos proved useful in leprosy research was that

41. ココノオビアルマジロがハンセン病研究において有益であることを証明した一つの理由は…

42. 1. the high rate at which they contracted leprosy in the wild provided researchers with a large study sample.

43. 2. the young of the armadillos infected with *M. leprae* demonstrated a natural immunity to the disease.

44. 3. their symptoms develop more slowly than in humans, which allowed the researchers to perform long-term experiments.

45. 4. they could be used as a means to grow *M. leprae* because of their relatively cool body temperature.

46. (34) What is one thing the author of the passage says about the current state of leprosy?

47. この文章の著者はハンセン病の現在の状態についてどんな一つのことを述べていますか。

47. 1. Leprosy sufferers in certain places are unable to receive treatment due to limited access to medical care.

48. 2. Leprosy is particularly difficult to control in areas with large populations of nine-banded armadillos.

49. 3. The treatment that has proven most effective is difficult to manufacture in large quantities.

50. 4. Lepromin injections are no longer considered a practical way to treat leprosy in developing countries.

to cultivate *M. leprae* in the laboratory, however, only yielded small amounts, which prevented any useful research from being carried out.

Further Questions*Ask student to answer the question on their own at first. If the student can't answer correctly, have him look at the last page and read the "example answer" for the question. Have the student try to memorize the answer, if it's too long or difficult, you should divide the sentence into 2 or 3 parts to make it easier to remember. Once they have memorized the answer, the teacher should ask the question one last time so that the student can practice answering. Also if you find any mistakes, please mark the page and let me know ASAP.

1) What symptoms are caused by Leprosy?

It can cause blindness and the loss of feeling in the hands and feet.

2) What did G.A. Hansen identify in 1873?

He identified the bacteria responsible for leprosy.

In the late 1960s, an American biochemist named Eleanor Storrs tried cultivating *M. leprae* in the nine-banded armadillo, a mammal common in the southern United States. She knew that in humans, *M. leprae* thrives in cooler extremities such as toes and fingers. Because the body temperature of the nine-banded armadillo is lower than that of humans, she thought they would be a good breeding ground for the bacterium. Furthermore, nine-banded armadillos give birth to four genetically identical young, a fact Storrs knew would be useful when conducting experiments to compare the condition of diseased and healthy animals.

Further Questions

3) Why were the bodies of armadillos a good breeding ground for bacterium?

It was a good breeding ground because their body temperatures are lower than that of humans.

4) What is unusual about the young of nine-banded armadillo?

They give birth to four genetically identical young.

Storrs found that nine-banded armadillos injected with *M. leprae* developed infection resulting in large numbers of the bacterium. Over the next 25 years, researchers studied bacteria taken from infected nine-banded armadillos to learn more about leprosy. A major breakthrough eventually came when a substance called lepromin was produced. When injected, lepromin causes a skin reaction in those infected with *M. leprae*. If diagnosed in this way at an early stage, leprosy is now curable with long-term treatment using a combination of antibiotics.

Further Questions

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They developed an infection resulting in large numbers of the bacterium.

6) What was the result of 25 years of study of bacteria taken from the armadillo?

A substance called lepromin was produced.

Thanks to the development of easy diagnosis methods and effective treatment, cases of leprosy worldwide have dropped dramatically. Unfortunately,

many of the 200,000 or so people who still become infected each year fail to be diagnosed and receive medication before the disease causes permanent damage because they live in poor and difficult-to-reach areas of the world.

Further Questions

7) What has happened thanks to the development of easy diagnosis methods?
The cases of leprosy worldwide have dropped dramatically.

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They live in poor and difficult-to-reach areas of the world..

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(32) What was G.A. Hansen's contribution to the fight against leprosy?

1. He made it possible to test treatments for leprosy by growing large amounts of *M. leprae* in the lab.
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Answers for “Further Questions”

- 1) Why are native plants considered more environmentally friendly?
They are considered more environmentally friendly, because they require less water than nonnative plants.
- 2) What do native plants attract?
They attract more birds and butterflies.
- 3) Why are native plants easier to maintain?
They are easier to maintain, because they are resistant to disease and harmful pests.
- 4) Where can gardeners buy nonnative plants?
They can buy them at a local nursery.
- 5) What do plant breeders have a long history of doing?
They have a long history of crossbreeding nonnative species with local ones.
- 6) What do many gardeners who insist on having only native plants fail to see?
They fail to see a contradiction in the choices they make for their vegetable plot.
- 7) Why would few gardeners consider limiting their fruits and vegetables to native species?
They wouldn't consider limiting them because most common vegetables are nonnative.
- 8) In your garden, do you plant mostly native plants?
No, because the most popular plants are all nonnative.

解答: (29) 3 (30) 1 (31) 2