

I 次の文章を読んで、問1～3に答えなさい。

It's always been obvious that differences exist between men and women. The theory that brains differ, however, was not so clear. Now research is confirming that the brains of men and women are subtly different.

You don't have to be a Nobel Prize winner to figure out that women and men are different from each other. ⁽¹⁾ It's well known that humans have characteristics specific (a) each sex, including female and male reproductive organs. But what about the organ that controls all body activities ranging (b) breathing to emotion? Could female brains differ from male brains? The idea has been debated for years.

Now accumulating research shows that there are indeed subtle brain differences between the sexes.

In the late 1960s and early 1970s scientists found the first clear evidence that brain differences exist, in mammals like rats and mice at least. One study showed differences in nerve cell size in an area of the brain known as the hypothalamus*, which is important for feeding, drinking and reproduction. Another examination of areas in the hypothalamus showed that the structure of certain connections differed between male and female rats. These connections, called synapses*, are the sites where nerve cells transmit messages. The scientists also found differences in the number of connections.

Since that time, researchers have discovered a number of differences in humans and other species. Many of these findings go beyond reproduction. For example, studies show that human male brains are, on average, approximately 10 percent larger than female brains. Certain brain areas in women, however, contain more nerve cells.

At this point, researchers do not know how the structural differences

influence brain function. It's possible that male and female brains work at a similar capacity but process information differently. For example, one study shows that men and women perform equally well in a test that asks them to read a list of nonsense words and determine if they rhyme*. Yet, the same study also demonstrates that women use areas on the right and left sides of the brain, while men only use areas on the left side to complete the test.

Other research suggests that, on average, the female brain performs better on some skills while the male brain executes other tasks at a higher level. For example, tests show that women generally can recall lists of words or paragraphs of text better than men. On the other hand, men usually perform better on tests that require the ability to rotate mentally an image of a figure in order to solve a problem. Mental rotation is thought to help people find their way, according to researchers. Does that leave the majority of women lost? Obviously not. Scientists believe that women may rely on their memory advantage and recall landmarks to find a destination.

It makes sense that brains vary between the sexes, according to some researchers. In ancient times, each sex had a very defined role that⁽²⁾helped ensure the survival of the species. Cave men hunted. Cave women gathered food near the home and cared (c) the children. Brain areas may have been sharpened to enable each sex to carry out their job.

注 hypothalamus 視床下部 ; synapse 神経細胞どうしの継ぎ目, シナプス ; rhyme 韻を踏む

問 1 下線部(1)と(2)を日本語に訳しなさい。

問 2 本文の内容と一致するものを下から3つ選び、記号で答えなさい。

- (a) It was a few decades ago that researchers found the first clear evidence of brain differences between the sexes in some kinds of mammals.
- (b) Men are better at tasks that involve skills to handle figures in mind, while women are better at verbal skills.
- (c) Women's brains are larger than men's, but recent studies suggest that men have the same number of brain cells.
- (d) Men and women's brains develop under the control of different sex hormones, which produce the size difference of the hypothalamus.
- (e) It is not always the same side of the brain that men and women use to cope with a problem.
- (f) The ancient male hunters had to go far away to collect food, mainly nuts and fruits.

問 3 空所(a)～(c)に適切な語を一語ずつ入れなさい。

II 飛行船はもともとガス袋(envelope)と骨組の関係から、硬式(rigid), 半硬式(semi-rigid), 軟式(non-rigid)の三種類に分けられていたが、現在使用されている飛行船はほとんど小型軟式飛行船(blimp)で、最近まで他の型式は忘れ去られていた。このことを参考に次の文章を読んで、問1～4に答えなさい。

Engineers, dreamers and businessmen have been talking about reviving the airship for decades. Soon, some of their ideas may start to get off the ground.

When Count von Zeppelin* took off in his first airship on July 2nd 1900, it seemed that the flying machine of the future had arrived. The next few decades saw a succession of ever larger and more ambitious craft, culminating in the 245-meter *Hindenburg*, which was launched in 1936. The *Hindenburg* could carry as many as 120 people. Indeed, it made several transatlantic crossings. But the glorious days of these graceful flying machines came to an end when the *Hindenburg*—filled, like most airships of the time, with explosive hydrogen—burst into flames in 1937.

Airship enthusiasts have been trying to pick up the pieces ever since. Modern advocates of the technology dream of a new generation of the machines, buoyed by inert helium* rather than by hydrogen, and taking advantage of space-age materials and modern avionics*. There are now signs that the long-awaited airship revival is starting. A handful of firms around the world have begun work on large airships, comparable in size to the great Zeppelins of the 1930s. Aiming at new markets in freight and luxury travel, they hope to fly within two years.

At present, the main use for airships is advertising. Colorful blimps, tiny by Zeppelin standards, are a common sight in the skies above cities. They are based on a non-rigid design, in which the pressure of the helium inside the envelope is used to maintain the airship's shape.

Larger modern airships rely on a semi-rigid design, in which engines and passenger compartments are suspended from a metal keel* that runs along the bottom of the envelope and prevents it from distorting under the load. Since 1997 Zeppelin Luftschifftechnik*, the direct descendant of the original Zeppelin company, has been testing the new model, a 75-meter semi-rigid design that can carry 12 passengers. But this is a pygmy compared with the Zeppelins of old. Several other companies have been thinking bigger.

Evidently there is still plenty of life in the airship concept. Before his death in 1917 von Zeppelin was hailed, somewhat prematurely, as the greatest German of the 20th century. Perhaps, with a few new twists, the form of transport he pioneered will do better in the 21st.

注 Count von Zeppelin ツェッペリン伯爵(硬式飛行船の考案者) ;
inert helium 不活性ヘリウムガス ; avionics 航空電子工学 ;
keel 竜骨(船体の背骨にあたる) ; Zeppelin Luftschifftechnik ツェッペ
リン飛行船技術社

問 1 下線部(1)と(2)を日本語に訳しなさい。

問 2 下線部(a)の内容とほぼ同じ意味をもつ文を本文中から抜き出し、その最初の1語を書きなさい。

問 3 下線部(3)の内容をもっとも適切に表すものを下から選び、記号で答えなさい。

- (ア) 飛行船にはまだまだ活用する余地がある。
- (イ) 飛行船にはまだまだたくさんの人が乗れる。
- (ウ) 飛行船は研究者が人生の大半をかける課題である。

問 4 将来の大型飛行船の用途として考えられていることを本文中から2つ抜き出し、英語で書きなさい。

Ⅲ 次の文章はインドを旅行するイギリス人の物語の一節である。これを読んで、問
1～4に答えなさい。

I was lying on a desert plain. I was dreaming about water. Jugs, streams, drops, canals, sinks and glasses. The only shade for miles was a ruined wall.

A few days before I'd been staying in the ancient city of Bikaner*, protected by its walls. I'd been befriended by Karna, a cloth merchant. He owned a shop on a street so narrow the sun never entered any of the rooms.

"No daylight in this shop," he said, "even in the daytime!"

I stood up and walked to a pile of silks. The dark couldn't disguise their beauty. I stroked a roll of bright green cloth.

"Five hundred," he said.

"What! You are a robber!" I laughed. "(A)" I pointed to a roll of Bagru, a cotton covered in blue geometric patterns.

"Ah," he said. "A cheaper cloth altogether. Not silk. I can't let you have something so poor."

"How much?"

"Oh..." He stroked his chin.

"How much?"

"To you...I can offer it at seventy-five."

"Seventy-five?" I laughed again. I'd seen the same in the bazaar for twenty, so I offered eighteen.

"Eighteen!" Karna stood up. "(B)" he said.

"No. I saw the same in the market for twenty. I could have had it for fifteen."

"The same?" he said.

“(C)”

He walked to the cloth. “But not as fine as this?”

“Exactly the same,” I said.

“Well,” he said. “If you want to buy, maybe I could make you a special price. I can see you are a businessman.”

I nodded. I wasn't a businessman, but if it was useful to pretend I was I wouldn't disagree. “What sort of price?”

“Maybe twenty-five...”

“(D) I could buy the same in the market for fifteen.”

“This is a finer cloth.”

“Is it?”

“I say so.”

“Fifteen,” I said.

When a sun we couldn't see set over the desert, and the day cooled, we'd struck a bargain. I'd pay him twenty rupees, he'd give me a yard of the cloth and a ride along the road to Jaipur*. I wanted to get back to the city.

The following morning, before the sun had begun to burn the road, Karna harnessed his camel to a cart, invited me to sit on piled rolls of cotton and set off on the road to Jaipur. He was to visit a customer in a desert village.

As the sun rose and the road snaked across dried plains, I said something about the weather.

“You English!” he exclaimed. “It's all you ever talk about. Why?”

I wasn't sure. “I don't know.”

“(E)” he said.

“Oh?”

“Oh yes.” He leant forward and whipped the camel. It was a bad-tempered animal and our progress was slow. “You are a very reserved people. You don’t like to tell other people anything about yourselves. You keep that all in, so you need something else to talk about when you have to. The weather’s a good choice. Everybody’s affected by it, so you talk about it.”

I laughed. My wife was into amateur psychology. Thinking about her made me laugh louder.

“No!” Karna was offended. “It’s true. Take yourself. You haven’t told me anything about yourself. If you were Indian I’d know what you worked in, who your parents are, what they did, and your brothers and sisters too. You’d tell me if there was a woman in your life, and why you were traveling alone. But you haven’t.” He hit the camel again. “You talk about the weather.”

I didn’t say anything for a while. I could have, but why I was there was my own business, and painful enough to have in my mind without talking about it.

“I’m sorry,” I said, “but I ...”

“(F)” he interrupted. “You talk about the weather.” He smiled and gave me a draught of water. “The last before midday,” he said. “So drink slowly.”

注 Bikaner ビカネール(インド北西部ラージャスターン州の都市) ;
Jaipur ジャイプル(ラージャスターン州の州都)

問 1 下線部(1)の内容を具体的に日本語で述べなさい。

問 2 下線部(2)を that の指す内容を明確にしなが、日本語に訳しなさい。

問 3 空所(A)～(F)に入るもっとも適切な文を下から選び、記号で答えなさい。

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|----------------------|-----------------------------|
| (ア) What about that? | (イ) You are playing a joke, |
| (ウ) No need, | (エ) But I told you. |
| (オ) I do, | (カ) Sure. |

問 4 下線部(3)とほぼ同じ意味の文を下から選び、記号で答えなさい。

- (a) My wife was much interested in amateur psychology.
- (b) My wife was going to study psychology by herself.
- (c) My wife was about to see a psychologist for free.
- (d) My wife was thinking favorably of amateur psychology.

IV 次の文章の下線部(1)と(2)を英語に訳しなさい。

高校生の時、テスト期間で早く帰宅した私は、

「今日の物理のテストはね、予想した問題が全然出なかったの。せっかく勉強し
(1) て行ったのに損しちゃった。」

と言いながら茶の間のふすまを開けた。ゾッとしたことには、そこには母ではなく
て父がすわって本を読んでいた。マズいなあ、と思いながらも、

「ただいま」

とあいさつすると、父は本から顔を上げずに、
(2) 「勉強というものは、そんなものじゃないだろう」

とひと言だけ言った。