

英語問題

(平成 26 年 度)

【注意事項】

1. この問題冊子は「英語」である。
2. 試験時間は 90 分である。
3. 試験開始の合図まで、この問題冊子を開いてはいけない。ただし、表紙はあらかじめよく読んでおくこと。
4. 試験開始後すぐに、以下の 5 および 6 に記載されていることを確認すること。
5. この問題冊子の印刷は 1 ページから 8 ページまでである。
6. 解答用紙は問題冊子中央に 3 枚はさみこんである。
7. 問題冊子に落丁、乱丁、印刷不鮮明な箇所等があった場合および解答用紙が不足している場合は、手をあげて監督者に申し出ること。
8. 試験開始後、3 枚ある解答用紙の所定の欄に、受験番号と氏名を記入すること（1 枚につき受験番号は 2 箇所、氏名は 1 箇所）。
9. 解答は必ず解答用紙の指定された箇所に記入すること。解答用紙の裏面に記入してはいけない。
10. 問題番号に対応した解答用紙に解答していない場合は、採点されない場合もあるので注意すること。
11. 問題冊子の中の白紙部分は下書き等に使用してよい。
12. 解答用紙を切り離したり、持ち帰ってはいけない。
13. 試験終了時刻まで退室を認めない。試験中の気分不快やトイレ等、やむを得ない場合には、手をあげて監督者を呼び指示に従うこと。
14. 試験終了後は問題冊子を持ち帰ること。

[I] 次の文章を読んで、下の問いに解答欄の範囲内で答えなさい。

Whatever knowledge we possess is either knowledge of particular facts, or scientific knowledge. The details of history and geography lie outside science in a sense; that is to say, they are presupposed by science, and form the basis upon which it is a superstructure. The sort of things that are demanded on a passport, such as name, date of birth, colour of grandfather's eyes, etc., are brute facts; the past existence of Caesar and Napoleon, the present existence of the earth and the sun and the other heavenly bodies, may also be regarded as brute facts. That is to say, most of us accept them as such, but strictly speaking, they involve inferences which may, or may not, be correct. If a boy learning history were to refuse to believe in the existence of Napoleon, he would probably be punished, which might, for a pragmatist, constitute sufficient proof that there was such a man; but if the boy were not a pragmatist, he might reflect that if his teacher had had any reason to believe in Napoleon, the reason might have been disclosed. 私が思うに、ナポレオンが神話ではないことを証明するに足る十分な論拠を示すことができるような歴史の教師はほとんどいないだろう。⁽⁷⁾ I am not saying that such arguments do not exist; I am only saying that most people do not know what they are. Clearly, if you are going to believe anything outside your own experience, you should have some reason for believing it.⁽¹⁾ Usually the reason is authority. When it was first proposed to establish laboratories at Cambridge, Todhunter, the mathematician, objected that it was unnecessary for students to see experiments performed, since the results could be vouched for by their teachers,⁽²⁾ all of them men of the highest character, and many of them clergymen of the Church of England. Todhunter considered that the argument from authority should suffice, but we all know how often authority has been proved mistaken. It is true that most of us must inevitably depend upon it for most of our knowledge. I accept on authority the existence of Cape Horn, and it is clearly impossible that each of us should verify all the facts of geography; but it is important that the opportunity for verification should exist, and that its occasional necessity should be recognized.

To revert to history: as we proceed into the past there is a gradually increasing doubt. Did Pythagoras exist? Probably. Did Romulus exist? Probably not. Did Remus exist? Almost certainly not. But the difference between the evidence for Napoleon and the evidence for Romulus is only one of degree. Strictly speaking, neither the one nor the other can be accepted as mere matter of fact, since neither comes within our direct experience.

Does the sun exist? Most people would say that the sun does come within our direct experience in a sense in which Napoleon does not, but in thinking this, they would be mistaken.⁽³⁾ The sun is removed from us in space as Napoleon is removed from us in time. The sun, like

Napoleon, is known to us only through its effects. People say they see the sun; but that only means that something has travelled through the intervening ninety-three million miles, and produced an effect upon the retina, the optic nerve, and the brain. This effect, which happens where we are, is certainly not identical with the sun as understood by astronomers. Indeed, the same effect might be produced by other means: in theory, a hot globe of molten metal could be hung up in such a position that, to a given observer, it would seem just like the sun. The effect upon the observer might be made indistinguishable from the effect which the sun produces. The sun, therefore, is an inference from what we see, and is not the actual patch of brightness of which we are immediately aware.

(出典: Bertrand Russell, *The Scientific Outlook*)

Notes

presuppose: to depend on something that is believed to exist or to be true.

brute fact: a crude or unexpected fact.

inference: an opinion or conclusion that is formed because of known facts.

pragmatist: a person who tends to solve problems in a practical and sensible way.

vouch for: to say that something is true, or to confirm.

clergyman: a priest or minister of a Christian church.

suffice: to be enough.

verification (n.) < verify (v.): to prove that something is true.

revert: to go back.

intervene: to come in or between so as to affect a result.

retina: a part of the eye sensitive to light.

optic: relating to the eye or vision.

- (1) 下線部 (ア) を英訳しなさい。
- (2) 下線部 (イ) の “it” の表す内容を、本文中から具体例を一つ挙げて日本語で説明しなさい。
- (3) 下線部 (ウ) を和訳しなさい。
- (4) 下線部 (エ) において, “thinking this” の内容を明らかにしたうえで, “mistaken” とされる理由を日本語で説明しなさい。

〔Ⅱ〕 次の文章を読んで、下の問いに解答欄の範囲内で答えなさい。

A wide spectrum of government officials, investors and religious groups are warning major retailers like Walmart, Benetton and Gap that they could face financial repercussions from consumers, damage to their stock value or sustained public protests if they do not adopt stricter garment manufacturing standards.⁽⁷⁾

With the death toll rising above 1,000 two weeks after an eight-story factory building collapsed in Bangladesh, organizations and officials say they have been growing impatient with American and European retailers and apparel brands because only two companies—PVH, the parent company of Calvin Klein and Tommy Hilfiger; and Tchibo, a German retailer—have signed onto a binding agreement on safety standards for factories. That agreement would commit companies to allow independent inspections of the apparel factories they use, to terminate business at factories that do not quickly correct violations and to underwrite needed safety improvements. For example, many garment factories in Bangladesh lack basic means for workers to flee in case of fire—specifically fire escapes and smokeproof enclosed staircases.

Avaaz, a human rights group, has collected 875,000 signatures on a petition urging Gap and H&M to sign on to the plan to commit to fire safety improvements at Bangladesh factories. New York City's comptroller, John C. Liu, who oversees city pension funds owning more than five million Walmart shares, is warning the company that it risks damage to its public image unless it does more on factory safety in Bangladesh.

Not just Western retailers are encountering more pressure after the April 24 collapse of the Rana Plaza building outside Dhaka, the Bangladeshi capital. The nation's government has suddenly grown tougher, closing 18 factories for safety violations. Three of those factories were run by the Nassa Group, the country's largest clothing exporter, which counts Walmart and Sears among its customers. Last weekend, the government also announced it would hire hundreds of additional factory inspectors.

The most visible pressures that retailers have faced are street protests, including one in Barcelona, where demonstrators wore shirts with fake blood stains to protest Mango, Benetton and other retailers. In the United States, university chapters of United Students Against Sweatshops have helped organize a series of demonstrations this week against Gap in Boston, Los Angeles, New York and Washington to press it on factory safety.

Alex Wilks, campaign director of Avaaz, which has 21 million members worldwide, said its online petition was aimed at the chief executives of Gap and H&M. The petition says, "Your companies and other multinationals profit from cheap labor, and can do much more to reduce the dangers of the places where your products are made."⁽¹⁾ Bangladesh, the world's second-

largest apparel exporter after China, has the lowest minimum wage in the world—\$37 a month—which has helped it attract billions of dollars in orders from the West.

"We feel that H&M and Gap are well placed to turn what have become death traps into safe factories," Mr. Wilks said. "We're targeting these two companies because they've made commitments to ethics, and we feel that this leadership makes them well placed to not only lead their own companies but also to lead the rest of the industry to sign up to these strong and enforceable agreements."

Two weeks ago, the German government sponsored a conference of retailers, apparel brands and antisweatshop groups that sought to push the companies to agree to take strong safety measures in Bangladesh. The antisweatshop groups have set Wednesday, May 15, as a deadline to persuade retailers to join the PVH-Tchibo plan, and they say that any retailers that do not sign will be the target of new protests.

Saying that his company has a strong reputation on social responsibility, Bill Chandler, a Gap spokesman, insisted that the attacks against his company were misplaced. "It's perplexing that they're targeting us when we're a leader in taking action on the ground while many others are passively sitting on the sidelines," he said.

Gap had hired a respected fire safety expert to inspect the dozens of factories it uses in Bangladesh. Gap has also said it will spend \$22 million for fire safety improvement there.

H&M, in a statement, said that improving fire and building safety in Bangladesh was one of its priorities. "We are working at full speed to reach the best solution with other stakeholders," the company said.

Mr. Liu has been singling out Walmart in particular. "The tragedy in Bangladesh may finally bring home the lesson to Walmart and others that they are responsible for their suppliers," he said. Walmart, Gap and H&M did not use any of the five factories in the building that collapsed, but customs records show that two American companies—the Children's Place and Cato Fashions—bought significant amounts of apparel from factories there over the last year.

Kevin Gardner, a Walmart spokesman, said the retailer was working to develop strong standards from its suppliers to create "a truly innovative, ethical and sustainable supply chain."

The union-owned Amalgamated Bank and the Interfaith Center on Corporate Responsibility are circulating letters among shareholders to exert pressure on numerous retailers.

Kellie A. McElhaney, an expert on corporate social responsibility at the Haas School of Business at the University of California, Berkeley, predicted that these pressures would hardly sway the companies. "They are feeling a lot of pressure, but it's not coming from consumers. It's coming from N.G.O.'s," she said, referring to nongovernment organizations. "They're not

feeling it in the marketplace. I believe they're going to do the bare minimum. The N.G.O.'s need to make more consumers aware of this."^(x)

(出典: *The New York Times*)

Notes

retailer: a person or business that sells things directly to customers for their own use.

repercussion: something usually bad or unpleasant that happens as a result of an action, statement, etc., and that usually affects people for a long time.

apparel: clothing of a particular kind.

underwrite: to give money to support (something, such as a new business) and agree to be responsible for any losses if it fails.

comptroller: a person who is in charge of the financial accounts of a company or organization.

stain: a mark made on a piece of clothing, etc., that is very hard to remove.

chapter: the people in a certain area who make up one section of a large organization.

sweatshop: a place where people work long hours for low pay in poor conditions.

exert: to cause (something) to have an effect or to be felt.

sway: to influence (a person).

(1) 下線部 (ア) の示す具体的な内容を、本文に即して簡潔に日本語で説明しなさい。

(2) 下線部 (イ) を和訳しなさい。

(3) 下線部 (ウ) の反論の根拠はどのような点にあるかを、本文に即して簡潔に日本語で説明しなさい。

(4) 現状では下線部 (エ) のようになる理由は何かと、そのような現状を改善するためには何が必要であるかを、本文に即して簡潔に日本語で説明しなさい。

〔Ⅲ〕 次の文章を読んで、下の問いに解答欄の範囲内で答えなさい。

Japanese people have special tools that let them get more out of eating sushi than Americans can. They are probably raised with these utensils from an early age and each person wields millions of them. By now, you've probably worked out that I'm not talking about chopsticks.

The tools in question are genes that can break down some of the complex carbohydrate molecules in seaweed, one of the main ingredients in sushi. The genes are wielded by the hordes of bacteria lurking in the guts of every Japanese person, but not by those in American intestines. And most amazingly of all, this genetic cutlery set is a loan. Some gut bacteria have borrowed their seaweed-digesting genes from other microbes living in the coastal oceans. This is the story of how these genes emigrated from the sea into the bowels of Japanese people.

Within each of our bowels, there are around a hundred *trillion* microbes, whose cells outnumber our own by ten to one. This "gut microbiome" acts like an extra organ, helping us to digest molecules in our food that we couldn't break down ourselves. These include the large carbohydrate molecules found in the plants we eat. But marine algae—seaweeds—contain special sulphur-rich carbohydrates that aren't found on land. Breaking these down is a tough challenge for our partners-in-digestion. The genes and enzymes that they normally use aren't up to the task.

Fortunately, bacteria aren't just limited to the genes that they inherit from their ancestors. Individuals can swap genes as easily as we humans trade money or gifts. This "horizontal gene transfer" means that bacteria have an entire kingdom of genes, ripe for the borrowing. All they need to do is sidle up to the right donor. And in the world's oceans, one such donor exists—a seagoing bacterium called *Zobellia galactanivorans*.

Zobellia is a seaweed-eater. It lives on, and digests, several species including those used to make nori. Nori is an extremely common ingredient in Japanese cuisine, used to garnish dishes and wrap sushi. And when hungry diners wolfed down morsels of these algae, some of them also swallowed marine bacteria. Suddenly, this exotic species was thrust among our own gut residents. As the unlikely partners mingled, they traded genes, including those that allow them to break down the carbohydrates of their marine meals. The gut bacteria suddenly gained the ability to exploit an extra source of energy and those that retained their genetic loans prospered.

This incredible genetic voyage from sea to land was charted by Jan-Hendrik Hehemann from the University of Victoria. Hehemann was originally on the hunt for genes that could help bacteria to digest the unique carbohydrates of seaweed, such as porphyran. He had no idea where this quest would eventually lead. Mirjam Czjzek, one of the study leaders, said, "The link

to the Japanese human gut bacteria was just a very lucky hit that we clearly had no idea about before starting our project. Like so often in science, chance is a good collaborative fellow!"

For now, it's not clear how long these marine genes have been living inside the bowels of the Japanese. People might only gain the genes after eating lots and lots of sushi but Hehemann⁽¹⁾ has some evidence that they could be passed down from parent to child. One of the people he studied was an unweaned baby girl, who had clearly never eaten a mouthful of sushi in her life. And yet, her gut bacteria had a porphyranase gene, just as her mother's did. We already know that mums can pass on their microbiomes to their children, so if mummy's gut bacteria can break down seaweed carbohydrates, then baby's bugs should also be able to.

This study is just the beginning. Throughout our history, our diet has changed substantially and every mouthful of new food could have acted as a genetic tasting platter for our gut bacteria to sample. 私自身、およそ2年間寿司を食べてきて、自分の腸内の相棒たちがそれ以来信じられない新しい力を得たかどうか知りたと思っていた。⁽⁷⁾ Sadly, Czjzek dispelled my illusions.⁽¹¹⁾ "Today, sushi is prepared with roasted nori and the chance of making contact with marine bacteria is low," she said. The project's other leader, Gurvan Michel, concurs. He notes that of all the gut bacteria from the Japanese volunteers, only *Bacteroides plebeius* has acquired the porphyranase enzymes. "This horizontal gene transfer remains a rare event," he says.

(出典: Skloot, R. and F. Skloot(eds.), *The Best American Science Writing 2011*)

Notes

utensil: a thing such as a knife, spoon etc. that you use when you are cooking.

wield: to hold and use (a weapon or tool).

horde: a large crowd moving in a noisy uncontrolled way.

lurk: to wait somewhere quietly and secretly.

intestine: the long tube in your body through which food passes after it leaves your stomach.

cutlery: knives, forks, and spoons that you use for eating and serving food.

microbe: a micro-organism, especially a bacterium causing disease.

outnumber: to be more in number than another group.

biome: 生物群系

algae: very simple plants that have no stems or leaves and that grow in or near water.

sulphur: 硫黄

sidle: to walk towards something or someone slowly and quietly, as if you do not want to be noticed.

cuisine: a particular style of cooking.

garnish: to add something to food in order to decorate it.

morsel: a very small amount of something, especially a small piece of food.

mingle: to mix.

unweaned: (of an infant) not accustomed to food other than its mother's milk.

platter: a large flat dish.

dispel: to make something go away, especially a belief, idea, or feeling.

concur: to be of the same opinion: to agree.

(1) 下線部 (ア) は、具体的には何のことか、本文に即して日本語で答えなさい。

(2) 下線部 (イ) の根拠は何か、本文に即して日本語で答えなさい。

(3) 下線部 (ウ) を英訳しなさい。

(4) なぜ下線部 (エ) のような事態になるのか、本文に即して日本語で答えなさい。