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(2019 年 12 月 早稲田大学 国際教養学部)

英語 (Reading)

(Sample 問題)

20XX 年度

<Sample 90 分間>

1 Read these seven short narratives, each a traditional tale about the finding of treasure by means of a dream, and answer the questions below. (The order of the tales has no particular significance.)

Tale A. The Swaffham Legend (England)

Noted for its fine tower added in the mid-fifteenth century, the church of St Peter and St Paul at Swaffham offers material about a legend worth recording. According to local tradition, the entire expense of refurbishing this noble edifice was supplied by a travelling packman named John Chapman who resided in the parish.

It is said that the peddler dreamed that if he went to London Bridge he would make his fortune. Undaunted by the difficulties of so long a journey over five centuries ago, when even stage coaches had not been invented, the packman heeded the voice of his good spirit, and went to London with his dog. After he had been wandering about on the bridge for three days, a man approached him and asked him to explain his purpose. With honesty equal to his faith, Chapman replied that he came there on the "vain errand of a dream."

Now it appears that the stranger was a dreamer also, but, unlike the peddler, he was neither superstitious nor imprudent. "Alas! good friend," said he, "if I had believed my dreams, I might have proved myself as big a [1] as you are, for it is not long since I dreamed that at a place called Swaffham in Norfolk lives a peddler, who has a tree behind his house, under which lies a pot of money."

Chapman hastened home, dug under his tree, and very soon found the treasure. But not all of it. The box that he found had a Latin inscription on the lid, which of course Chapman could not decipher. But though [2], he was not without a certain kind of wisdom, so, in the hope that some traveler might read the inscription in his hearing, he placed it in his window.

It was not long before he heard some youths turn the Latin sentence into an English couplet:

Under me does lie

Another much richer than I.

Again he went to work, digging deeper than before, and found an even greater treasure.

With a heart overflowing with gratitude for his good fortune, the peddler shortly afterwards, when the inhabitants of Swaffham wished to rebuild their church, astonished the whole town by paying for everything.

Still today, on the ends of the oak bench nearest the pulpit, there can be seen the carved effigy of Chapman with his pack of wares on one side, and that of his dog on the other. This is sufficient to establish the truth of the legend in the minds of the credulous of the district.

Tale B. Dundonald Castle (Scotland)

In Ayrshire, the following [3] is still prevalent, and is probably very old:

Donald Din

Built his house without a pin.

It alludes to Dundonald Castle, the last remaining property in Ayrshire of the noble family who take their title from it. According to tradition, it was built by a hero named Donald Din, and constructed entirely of stone, without the use of wood.

Donald, the builder, was originally a poor man, but had the faculty of dreaming lucky dreams. Upon one occasion he dreamed, thrice in one night, that if he were to go to London Bridge, he would become a wealthy man. He went accordingly, saw a man looking over the parapet of the bridge, whom he addressed courteously, and, after a little conversation, entrusted with the secret of the reason for his coming to London Bridge.

The stranger told him that he had come on a very foolish errand, for he himself had once had a similar vision, which directed him to go to a certain spot in Scotland, where he would find a vast treasure. For his part, the stranger had never once thought of obeying the injunction.

From his description of the spot, the sly Scotsman at once perceived that the treasure in question must be concealed in no other place than his own [4], to which he immediately repaired, in full expectation of finding it. Nor was he disappointed; for, after destroying many good and promising vegetables, and completely losing credit with his wife, who thought him mad, he found buried a large potful of gold coin, with which he built a stout castle for himself, and became the founder of a flourishing family.

Tale C. The Little Fellows (Isle of Man)

There was a man once in the Isle of Man who met one of the "Little Fellows," as the fairies are often referred to out of either respect or fear. The Little Fellow told him that if he would go to London Bridge and dig, he would become a rich man. So he went, and when he got there he began to dig, and another man came to him and said, "What are you doing?"

"One of the Little Fellows told me to come to London Bridge and I would find a fortune," says he.

The other man said, "I dreamed I was back in the Isle of Man and I was at a house with a thorn tree near the chimney, and if I would dig there I would find a fortune. But I wouldn't go, for it was only foolishness."

Then he gave him such a clear picture of the house that the first man knew it was his own, so he went back to his home at Port Erin. When he got there he dug under the little thorn tree by the chimney and he found an iron box. He opened the box, and it was full of gold, and there was a note in it, but he could not read the note because it was in a foreign language. So he put it in the

smithy window and challenged any [5] who went by to read it. None of them could, but at last one senior boy said it was Latin and it meant, "Dig again and you'll find another."

So the man dug again under the thorn tree, and what did he find but another iron box full of gold! And from that day until the day of his death, the man used to open the front door before going to bed, and call out, "My blessing on the Little Fellows!"

Tale D. The Bridge at Limerick (Ireland)

I heard of a farmer from Mayo who went to Limerick, and walked two or three times across the bridge there. A cobbler who was sitting on the bridge mending shoes noticed him and asked him what was he looking for. The farmer said he had had a dream that under the bridge of Limerick he'd find treasure.

"Well," says the cobbler, "I had a dream myself about finding treasure, but in another sort of a place than this." And he described the place where he dreamed it was, and where was that, but in the Mayo man's own field.

So the farmer went home again, and sure enough, there he found a pot of gold with no end of riches in it. But I never heard that the cobbler found anything under the bridge at Limerick.

Tale E. The Bridge at Regensburg (Germany)

Some time ago a man dreamed that he should go to the bridge at Regensburg where he would become rich. He went to Regensburg, and after he had spent a fortnight there a wealthy merchant, who wondered why he was spending so much time on the bridge, approached him and asked him what he was doing.

The latter answered, "I dreamed I was to go to the bridge at Regensburg and I would become rich."

"What?" said the merchant, "You came here because of a dream? Why I myself dreamed that there is a large pot of gold buried beneath that large tree over there." He pointed to the tree. "But I paid no [6], for dreams are no more than fantasies and lies."

Then the visitor went and dug beneath the tree, where he found a great treasure that made him rich, and thus his dream was confirmed.

This legend is also told about other cities, for example about Lübeck, where a baker's servant dreams that he will find a treasure on the bridge. Upon going there and walking back and forth, a beggar speaks to him, telling how he has dreamed that a treasure lies beneath a linden tree in the churchyard at Möln but that he is [7] about to go there. The baker's servant answers, "Yes, dreams are often nothing but foolishness. I will give my bridge-treasure to you." With that he departs and digs up the treasure from beneath the linden tree.

Tale F. Japnig's Dream (Austria)

On the Tyrolean border near Wopnitz there lived a peasant whose name was Japnig. His situation had sunk so low that he feared his few remaining goods would be confiscated by the authorities.

One night he dreamed he should go to Stall in the Möll Valley, and, according to the dream, he would find a treasure on his way there. Japnig found this dream very striking, so he set forth immediately. On the way he met an old invalid soldier on a bridge, who, as is customary asked him how far he was going.

"To Stall," answered the peasant, then added, "And you?"

"I don't know" answered the invalid, "I have neither home nor money."

This topic gave the two common ground, and they complained long together of their [8] times. Finally the peasant told the old soldier about his dream.

The latter laughed in his face and said, "Anyone can dream about treasure. I myself have dreamed three times that there was a treasure in the hearth of someone named Japnig. What good is this to me? Do I even know if such a fellow exists? Dreams are foam."

Japnig was very startled to hear his name. He became still as a mouse, then said farewell to the soldier. He did not go to Stall, but after a small detour returned immediately to his home in Wopnitz, where he quickly began to tear apart his hearth. His wife thought that he had gone mad, but mortared into the hearth he found a pot filled with golden dollars, which solved all Japnig's problems.

According to another version, Japnig walked all the way to the bridge at Prague where he met the old soldier. That would have been a great distance, but this frequently told tale always features a bridge, whether at Innsbruck, Regensburg, or Prague.

Tale G. The Church at Erritsø (Denmark)

Many years ago there lived at Erritsø, near Fredericia, a very poor man, who one day said, "If I had a large sum of money, I would build a church for the parish."

The following night he dreamed that if he went to the north bridge at Veile he would find nothing, but if he visited the south bridge, he would make his fortune. He followed the intimation, and strolled backwards and forwards on the [9] bridge, until it grew late, but without seeing any sign of his good fortune. When just on the point of returning, he was accosted by an officer, who asked him why he had spent the whole day walking on the bridge.

The poor man then explained his dream. On hearing it, the officer related to him in return that he also, on the preceding night, had dreamed that in a barn at Erritsø, belonging to a man whose name he mentioned, a treasure lay buried. But the name he mentioned was the man's own, who prudently kept his own counsel, hastened home, and found the treasure in his own barn. The man was faithful to his [10] and built the church.

Adapted from D.L. Ashliman, Folktexts:
"The Man Who Became Rich through a Dream,"
URL: <http://www.pitt.edu/~dash/type1645.html>

(1) From the phrases in the box below, choose the most appropriate one to complete each of the following ten sentences. You may use any of the phrases more than once.

- 1 A man goes in search of treasure after being prompted by something other than a dream in
- 2 Both the man going to the bridge in search of treasure and the man encountered at the bridge are extremely poor in
- 3 Searching for treasure under (rather than on) a bridge is specified in
- 4 The discovery of treasure leads to the foundation of an aristocratic family in
- 5 The existence of more than one bridge in the same town or city is mentioned in
- 6 The specific historical period when the events take place is indicated in
- 7 The man going in search of treasure is accompanied by a domestic animal in
- 8 The man going in search of treasure is accompanied by a young woman in
- 9 The person encountered at the bridge is a rich man in
- 10 The person encountered at the bridge is a native of the same region as the person travelling to the bridge in

A the English tale.	B the Scottish tale.	C the Manx tale.	D the Irish tale.
E the German tale.	F the Austrian tale.	G the Danish tale.	H none of the seven tales.

(2) Choose the FIVE statements below which DO NOT agree with what is written in the set of tales. You must NOT choose more than FIVE statements.

- A All of the tales concern a man travelling to a bridge in search of a fortune.
- B All of the tales name the place where the man seeking a fortune comes from.
- C Both Tales A and C mention two portions of treasure being found on the same spot.
- D Both Tales E and F mention that there exists more than one version of the legend recounted.
- E In Tale B alone is the wife of the man who finds treasure through a dream mentioned.
- F In Tale E alone is the treasure NOT found in or around the home of the man seeking it.
- G In one of the tales the fortune gained through a dream is used to build a castle, and in two for the construction or restoration of a church.
- H In two of the tales London Bridge is mentioned, and in three the bridge at Regensburg.
- I None of the tales is set outside Europe.
- J Only Tales B and F specify that the discovered treasure consists of gold coins.
- K Only the first two tales in the series (Tales A and B) mention the name of the man who finds the treasure.
- L Tales A, C and E all state that the treasure is eventually found buried at the foot of a tree.
- M The first four tales in the series (Tales A to D) do not mention the occupation of the man encountered at the bridge.

(3) Choose the best item to fill each of the numbered blanks to found in the set of tales.

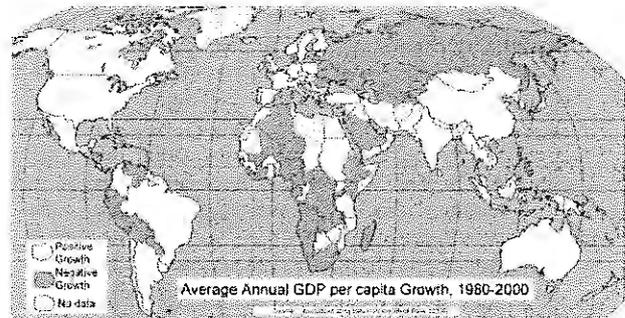
- | | | | | |
|-------------------|-----------------|------------------|--------------|---------------|
| 1 A baby | B fool | C man | D rogue | E youth |
| 2 A incomplete | B irresolute | C unconcerned | D uneducated | E unknown |
| 3 A account | B legend | C reason | D rhyme | E ritual |
| 4 A apple orchard | B cabbage patch | C chimney corner | D fire place | E rose garden |
| 5 A beggar | B farmer | C merchant | D scholar | E soldier |
| 6 A attention | B compensation | C dues | D insurance | E reflection |
| 7 A also | B just | C later | D not | E soon |
| 8 A good | B hard | C old | D past | E summer |
| 9 A appointed | B nearest | C north | D other | E respective |
| 10 A honor | B officer | C patron | D priest | E word |

2 Answer the questions below after reading the following passage.

① For the first time in history, we have the opportunity to end extreme poverty in the world's most desperate nations. Currently, more than eight million people around the world die each year because they are too poor to stay alive. Our generation can choose to end that extreme poverty by the year 2025.

② The map shows countries in the world in relation to their Gross Domestic Product (GDP) during the twenty-year period between 1980 and 2000. As many as forty-five countries experienced negative growth in GDP per capita. It is also illuminating to divide the world's economies into the following six categories, depending on their per capita income in 1980.

- All low-income countries
- Middle-income oil exporters
- Middle-income post-communist countries
- Other middle-income countries
- High-income oil exporters
- Other high-income countries

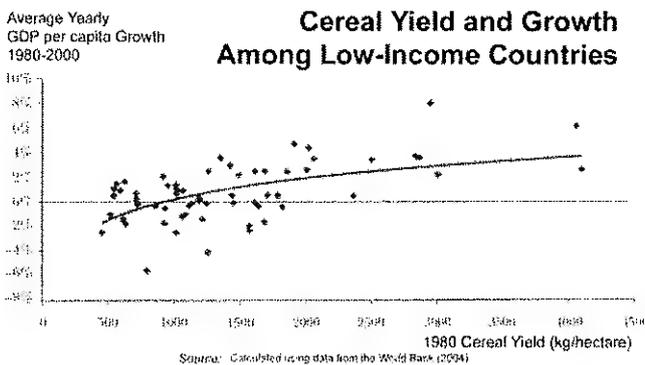


The biggest problem with economic decline is indeed in the poorest countries, especially, but not only, in sub-Saharan Africa. Another observation is that, except for oil-exporting and ex-Soviet countries, all high-income countries and most middle-income countries achieved economic growth. The only growth failure among high-income countries occurred in Saudi Arabia, an oil-exporting country. Among the middle-income countries, the vast proportion of growth failures were in the oil-exporting and post-communist countries. In the rest of the middle-income countries, twelve out of fourteen enjoyed positive economic growth.

③ The economic declines in the oil-producing and post-communist countries reflect very unusual circumstances. The oil-rich states are, of course, not impoverished countries, but instead are middle-income and high-income countries where the economic activity depends overwhelmingly on oil exports. These economies rise and fall in line with the "real" price of oil, that is, the price of oil relative to the price of imports such as machinery and consumer goods. The real price of oil soared during the 1970s, leading to the massive growth in living standards of these economies, but during the 1980s and 1990s, the oil price fell sharply, leading to a collapse of living standards. If there is a lesson here, it is that an economy dependent on a single product (or a small number of products) for export is bound to experience high volatility as the relative price of the product fluctuates in world markets. Since the price of oil is highly unstable, the real income of the oil economies has similarly been highly volatile.

④ The economic decline in post-communist countries is even more of a special case. These countries have experienced a one-time decline in GDP per capita as they changed over from a failed communist system to a market economy. Even in the case of the strongest of the so-called transition economies—the Czech Republic, Hungary, and Poland—there was a period of sharp reduction in GDP per capita for a few years as old heavy industries linked to the Soviet economy declined or disappeared in bankruptcy and new sectors took time to develop. The result was what economists called a transition recession. By the late 1990s, the post-communist countries had resumed economic growth, but from a lower GDP per capita than before the Soviet collapse.

⑤ Poor countries have a significant chance of falling into a poverty trap. Out of the fifty-eight non-oil countries with per capita incomes below \$3,000, twenty-two (or 38 percent) experienced an outright decline. Yet the thirty-six other countries enjoyed economic growth. How is it that some very poor countries escaped the ravages of the poverty trap while the rest did not? Comparing those countries that made it and those that did not, the success stories show certain common characteristics. The most important determinant, it seems, is food productivity. Countries that started with high cereal yields per hectare, and that used high levels of fertilizer input per hectare, are the poor countries that tended to experience economic growth. As the graph shows, countries that began with very low yields are the countries that tended to experience economic decline between 1980 and 2000.



⑥ The biggest difference between Africa and Asia is that Asia has had high and rising food production per capita during recent decades, whereas Africa has had low and falling food production per capita. The Asian countryside is densely populated, with a relatively extensive road network that can carry fertilizers to the farms and farm output to the markets. Farmers use fertilizers and irrigation, and food yields are high. Donor agencies gave plenty of support to the development of new high-yield varieties in Asia. Under these conditions, Asian farmers were able to adopt high-yield crop varieties that produced the famous Green Revolution of rising food production per farmer. The African countryside is much less densely populated, with an absence of roads to transport fertilizers and crops. Farmers do not use fertilizers on food crops, and depend on rainfall rather than irrigation. Donors have failed

to adequately fund the scientific efforts toward improved varieties appropriate for African conditions. In these much harsher circumstances, Africa's farmers were not able to benefit much, if at all, from the Green Revolution development of high-yield varieties of food crops.

⑦ There are other tendencies apparent in the data. The Asian countries that experienced growth started in 1980 with better social conditions: higher literacy, lower infant mortality, and lower total fertility rates. They were, therefore, less prone to fall into a demographic trap of rapidly rising populations pressing on a limited amount of farmland. Once again, the Asian peasants were somewhat better off than their African counterparts. Another tendency is that poor countries with larger populations seem to have done better than poor countries with smaller populations. The larger populations probably increased the size of the domestic markets, making them more appealing to both foreign and domestic investors. Perhaps it was easier to introduce key infrastructure, such as roads and power supplies, in countries with larger populations, since these infrastructure networks are characterized by high initial costs of construction that are more easily financed by larger and more densely populated economies.

⑧ Another reason for persistent poverty is the failure of government. The very poor are often disconnected from market forces because they lack the necessary human capital—good nutrition and health, and an adequate education. It is vital that social expenditures directed at human capital accumulation reach the poorest of the poor, yet governments often fail to make such investments. Economic growth enriches many households, but is not taxed sufficiently to enable governments to increase social spending proportionately. Or even when governments have the revenue, they may neglect the poorest of the poor, especially if those groups are part of ethnic or religious minorities.

⑨ A further possible reason for continued poverty in the midst of growth is cultural. In many countries, women face extreme cultural discrimination, whether or not those biases are embedded in the legal and political systems. In South Asia, for example, there is an overwhelming number of case studies and media reports of young women within the household not having enough to eat, even when there is enough to go around. The women, often illiterate, are poorly treated by in-laws and lack the social standing, and perhaps the legal protection, to ensure their own basic health and well-being. In short, there are numerous possibilities for the persistence of poverty even in the midst of economic growth, and only a detailed analysis of particular circumstances will allow an accurate understanding.

⑩ When countries get their foot on the ladder of development, they are generally able to continue the upward climb. All good things tend to move together at each step: higher capital stock, greater specialization, more advanced technology, and lower fertility. If a country is trapped below the ladder, with the first step too high off the ground, the climb does not even get started. The main objective of economic development for the poorest countries is to help them gain a foothold on the ladder. The rich countries do not have to invest enough in the poorest countries to make them rich; they only need to invest enough so that these countries can get their feet on the ladder. After that, the self-sustaining power of economic growth can take hold.

[Adapted from Jeffrey Sachs, *The End of Poverty* (2005)]

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(1) Choose the best way to complete these sentences about paragraphs ① to ⑩.

- | | |
|--|--|
| 1 In paragraph ① the writer suggests | 2 As discussed in paragraph ②, the map shows |
| 3 In paragraph ③ the writer suggests | 4 In paragraph ④ the writer demonstrates |
| 5 As discussed in paragraph ⑤, the graph shows | 6 In paragraph ⑥ the writer explains |
| 7 In paragraph ⑦ the writer demonstrates | 8 In paragraph ⑧ the writer shows |
| 9 In paragraph ⑨ the writer demonstrates | 10 In paragraph ⑩ the writer suggests |

- A how Asian agriculture outperformed African agriculture, contributing to the former's extraordinary growth.
- B how gender discrimination can be a factor in the persistence of poverty.
- C how governments may contribute to the continuing problem of poverty by failing to provide economic help to disadvantaged social groups.
- D how, in post-communist countries, the change to a market economy led at first to recession, followed by fresh economic growth stimulated by the development of new industries.
- E how oil-producing countries benefited from a large increase in the price of oil in the last decade of the twentieth century.
- F how the nations of the world can be divided into six groups according to their fertility, literacy, and infant mortality rates.
- G that, among low-income countries, high grain yields in 1980 were associated with significant economic growth over the following two decades.
- H that an increase in the range of products a country exports will tend to promote economic stability in that country.
- I that East Asia and Western Europe differ greatly in their levels of investment in the poorest countries.
- J that it is likely to be easier to build transportation and energy networks in countries with larger populations.
- K that no high-income country in Western Europe or East Asia failed to achieve economic growth in the last two decades of the twentieth century.

L that the problem of severe poverty in the poorest nations of the world can be overcome within the next twenty years.

M that what the poorest countries really need from the rich countries is assistance that will allow them to start on the road toward economic self-sufficiency.

(2) Choose the FOUR statements that do NOT agree with what the passage says.

A Although poor countries are capable of some economic growth, they will continue to require massive amounts of aid from rich countries.

B Among the post-communist nations, the three which have gone through the change to a market economy most successfully are Poland, Hungary, and the Czech Republic.

C Around two-thirds of the countries with a per capita GDP of less than \$3,000 experienced economic decline during the final decades of the twentieth century.

D Crop irrigation and the use of fertilizers have been much more common in Asian than African low-income countries.

E In order for significant progress to be made within poor countries, efforts should be made to improve the conditions of the poorest of their poor.

F Many, but by no means all, of the poorest countries that experienced economic decline are found in sub-Saharan Africa.

G More money is needed for scientific research into specific types of crops suitable for the agricultural conditions encountered in Africa.

H Poor countries with larger populations have generally fared better economically than those with smaller populations.

I The lack of an adequate infrastructure is a major reason for the inability of nations in South Asia to produce enough food.

J The only middle-income countries to experience economic decline between 1980 and 2000 were either oil-producers or those that formerly had communist governments.

(3) Choose the best way to complete each of these sentences, which refer to the underlined words/phrases in the passage.

1 Here vast proportion means

A even balance. B minimum number. C overall average.

D overwhelming majority. E tiny minority.

2 Here high volatility suggests that the economy will experience considerable

A decline. B deflation. C fluctuation. D growth. E inflation.

3 Here transition means period of

A acceleration. B advance. C change. D disruption. E reversal.

4 Here ravages means

A destructive effects. B gross injustices. C positive outcomes.

D sexual assaults. E uncivilized groups.

5 Here irrigation is an agricultural term referring to the supply of

A fertilizer. B labor. C light. D soil. E water.

6 Here infant mortality refers to measurement of the percentage of children

A being born. B dying. C entering school. D entering hospital. E working.

7 Here persistent means

A acute. B enduring. C fatal. D occasional. E permanent.

8 Here illiterate means unable to

A cook and clean. B earn money. C have children. D read and write. E work outside.

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Map 5: Average Annual GDP per Capita Growth, 1980-2000,"
copyright © 2005 by Jeffrey D. Sachs, Source: Data from World
Bank (2004); Excerpt(s) and "Figure 2: Cereal Yield and Growth
Among Low-Income
Communities" from THE END OF POVERTY: ECONOMIC
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3 Read the following article from a science magazine and answer the questions below.

How can skinny people still exist? If we live in an environment that promotes obesity – filled with fast food, sugary drinks, TVs and cars – why isn't everyone obese? And if our genes cause us to be fat, why has the search for "obesity genes" not succeeded?

For me, the quest to answer these questions began when I was a student working in labs with genetically identical mice eating identical food. Surprisingly, the mice differed greatly in size. What caused the differences if it wasn't their diets or DNA?

As I moved between labs, I noticed that pregnant mice without access to exercise wheels produced offspring that would themselves have larger, fatter offspring. While the first and second generations weren't much larger, later generations certainly were. To me, this was an amazing observation: the activity levels of [1] and mothers during pregnancy seemed to determine the fatness of future generations. But was my observation correct? And if so, what were the mechanisms?

I wasn't the first to observe this trend. Half a century earlier, the geneticist D. S. Falconer had found that by breeding only the largest offspring of genetically identical mice eating [2] diets, it was possible to produce progressively larger and fatter offspring over several generations.

This finding supported my intuition that genes and food aren't sufficient explanations of obesity. Despite the recent fanfare over the identification of a suite of genes associated with obesity, they explain less than 2 per cent of the variation in obesity between individuals. This leaves the other 98 per cent – known as the "missing heritability" – still to be discovered.

When I began my own experiments to find the missing heritability, I found further evidence that calorie [3] doesn't explain obesity: active mothers and their leaner offspring ate more food and calories than the fatter inactive mice. Once again, I wasn't the first to discover this. In the 1950s, nutrition scientist Jean Mayer demonstrated that active animals, whether mice, rats or humans, ate more food and stayed leaner and healthier than sedentary ones.

By 2014, when I started my current job as a physiologist in the Nutrition and Obesity Research Center, at the University of Alabama at Birmingham, I had conducted an extensive literature review that turned my intuition into a theory that revealed a new way of understanding why so many children today are obese. The answer was a combination of what is termed a mother's "body composition" and her physical activity during pregnancy.

When pregnant women are physically active, the increased energy demands [4] nutrients to her muscles and away from her fetus. This competition between the mother's muscles and the developing fetus's fat cells produces leaner, healthier babies. Their genes and food intake are irrelevant to the process.

This competition doesn't happen in inactive mothers with different body compositions. Without having to struggle for energy and nutrients, the fat cells in the fetus increase in both size and number, making the birth weight of the infant heavier – a factor strongly related to adult obesity and type II diabetes. This is passed on down the line, with future generations becoming fatter and increasingly inactive and unhealthy.

This is an example of "non-genetic evolution," where traits are transmitted to offspring with no underlying change in their genome. This process helps to explain Falconer's observations in [5], while demonstrating the power of what he termed the "uterine environment" to permanently shape the metabolic processes that predispose some fetuses to obesity and metabolic disease. As it turned out, the idea that the uterine environment affects the fetus is commonplace in evolutionary biology and has been observed across many species. Known as "accumulative maternal effects," it describes how a mother's age, size, fat stores and behavior, including physical activity, affect not only her health and metabolism, but also that of future generations.

Humans are no exception. For instance, a 1995 study of babies born through egg donation found that the only discernible factor influencing their birth weight was the surrogate mother's body mass. The egg donor's body mass, her own birth weight and the birth weight of her other children bore no relationship to the birth weight of the infant produced from the donated egg.

The genes from the egg donor's biological mother played no detectable role in the birth weight of the infant. This helps to explain why, despite many billions of research dollars, the search for obesity genes will continue to [6].

The theory that the nine months we spend in the womb significantly affects our health has been around for centuries – it was addressed by the Ancient Greek physician Hippocrates, for example. More recently the "thrifty phenotype" hypothesis developed in the 1990s found that an impoverished uterine environment can program a fetus's metabolism, predisposing it to obesity and diabetes. However, this doesn't explain why childhood and adult obesity exploded during the late 1970s, when food was abundant. This is where [7] theory transforms our understanding of childhood obesity.

For most of human history, survival required huge amounts of physical exertion. Essential activities like hunting, gathering, chopping wood and carrying water provided sufficient physical activity to make [8] exercise unnecessary. Yet over the past century, socio-environmental changes slowly eliminated physical labor. At first, technological advances coupled with a healthier food supply led to the birth of children that were the fittest in human history. But by the middle of the 20th century, the advent of labor-saving devices, the rising popularity of the car and passive, sedentary entertainment led to people becoming fatter and more inactive.

From 1965 to 2010, the amount of energy expended in the home by women in the US decreased by almost 2000 kcal per week. At the same time, the amount of time they spent watching TV and using [9] doubled. My research has found that obese women in the US get less than one hour of vigorous physical activity per year. Not surprisingly, just as inactive mice produce

grandchildren that are bigger and fatter, so too do non-exercising US women.

By the late 1970s, a [10] point was reached in which mothers were so inactive that the evolution of human energy metabolism was markedly altered. As a result, fetuses grew so large that the need for the surgical procedures traditionally known as “caesarean sections” rose significantly. The increased use of such surgical interventions during pregnancy allowed both the larger babies and the mothers that produced them to survive and reproduce. Thus, natural selection was turned into artificial selection, and the number of metabolically compromised children and adults increased in the global population.

Non-genetic evolution is the primary determinant of obesity, not gluttony, fast food or genes. The best solution to the obesity epidemic is to encourage would-be mothers to increase their levels of physical activity so that they can prepare their metabolism for pregnancy and have leaner, healthier children.

[Adapted from Edward Archer, “The mother of all problems,” *New Scientist* (March 3, 2015)]

※下記に出典を明記しております。

(1) From the list below choose the best definition to match the usage in the article of each of the eight technical terms in the box.

1 accumulative maternal effect	2 body composition
3 caesarean section	4 missing heritability
5 non-genetic evolution	6 obesity gene
7 thrifty phenotype	8 uterine environment

- A Characteristics that are transmitted to offspring without any associated development in heritable material.
- B Emergency surgical operation removing the mother’s uterus to preserve the life of the fetus.
- C Heritable material assumed to account for physical defects that has not yet been identified.
- D Heritable material that predisposes a body to become seriously overweight.
- E How a mother’s physical condition and activity influence her own future health and that of her descendants.
- F Increased susceptibility to disease resulting from adaptations made by the fetus in a poor uterine environment.
- G Physical surroundings of a fetus in the period before birth.
- H Psychological circumstance of a baby in the period immediately following birth.
- I Surgical incision in the mother’s abdomen allowing a baby to emerge without passing through the birth canal.
- J The proportions of fat, bone, water and muscle found in the human constitution.
- K Why a pregnant woman’s constitution is particularly susceptible to the accumulation of water and fat.

(2) Choose the FIVE statements below which DO NOT agree with what is written in the article. You must NOT choose more than FIVE statements.

- A According to the author's research, the average American woman today takes only one hour of rigorous exercise each week.
- B A mid-1990s study of babies born via donated eggs suggested that the only variable correlating with the birth weight of the baby is the body mass of the woman providing the egg.
- C At the time of writing, the author of the article was employed in a center for obesity research at an American university.
- D D. S. Falconer was the scientist who trained the author in the field of genetics while he was still an undergraduate student.
- E Hippocrates was a doctor in Ancient Greece who discussed the idea that the period between conception and birth has a profound influence on future human health.
- F Not long after the end of the Second World War, the food scientist Jean Mayer showed that active animals eat more than inactive ones but become less fat.
- G Over the last half century the amount of energy expended by women in American homes has declined by over two hundred per cent.
- H Recently a group of genetic materials related to obesity has been discovered, though they only account of a very small proportion of individual variation in this regard.
- I The author of the article argues that neither genetic inheritance nor overeating are the primary causes of the current epidemic of obesity.
- J The author of the article began to think about questions concerning the underlying causes of obesity while he was still a student.
- K The author of the article claims that the answer to the growing problem of childhood obesity is for potential mothers to become more physically active prior to having babies.
- L The trend towards a decline in physical activity accompanied by an increase in body weight was noticeable from the turn of the twentieth century when motor vehicles, television sets and vacuum cleaners were first invented.
- M The use of surgical operations to assist childbirth increased markedly from the late 1970s due to the growing size of fetuses.

(3) Choose the best item to fill each of the numbered blanks to in the article.

- 1 A daughters B fathers C grandchildren D grandmothers E sons
- 2 A different B high-calorie C identical D low-calorie E similar
- 3 A gain B intake C loss D output E transfer
- 4 A redirect B reduce C replace D restore E revolve
- 5 A cats B humans C mice D rabbits E rats
- 6 A decline B destroy C disappoint D excite E escalate
- 7 A every B Falconer's C his D Mayer's E my
- 8 A deliberate B extreme C gentle D occasional E unconscious
- 9 A computers B drugs C gyms D smartphones E weapons
- 10 A balancing B high C low D middle E tipping

(4) When the article was reprinted in digital form it was given another title. Choose the most likely alternative title from the list below.

- A I've discovered how skinny moms produce obese kids
- B I've discovered when the obesity crisis began
- C I've discovered where the obesity gene is hidden
- D I've discovered who started the obesity epidemic
- E I've discovered why so many children are obese