2021下半年

六级长篇阅读

四六级我只看瑞斯拜

目录

TEXT1

Countries Rush for Upper Hand in Antarctica

A) On a glacier-filled island with *fjords*（峡湾）and elephant seals, Russia has built Antarctica's first Orthodox church on a hill overlooking its research base. Less than an hour away by snowmobile, Chinese labourers have updated the Great Wall Station, a vital part of China's plan to operate five bases on Antarctica, complete with an indoor badminton court and sleeping quarters for 150 people. Not to be outdone, India's futuristic new Bharathi base, built on *stilts*（桩子）using 134 interlocking shipping containers, resembles a spaceship. Turkey and Iran have announced plans to build bases, too.

B) More than a century has passed since explorers raced to plant their flags at the bottom of the world, and for decades to come this continent is supposed to be protected as a scientific preserve, shielded from intrusions like military activities and mining. But an array of countries are rushing to assert greater influence here, with an eye not just towards the day those protective treaties expire, but also for the strategic and commercial opportunities that already exist.

C) The newer players are stepping into what they view as a treasure house of resources. Some of the ventures focus on the Antarctic resources that are already up for grabs, like abundant sea life. South Korea, which operates state-of-the-art bases here, is increasing its fishing of *krill*（磷虾）, found in abundance in the Southern Ocean, while Russia recently frustrated efforts to create one of the world's largest ocean sanctuaries here.

D) Some scientists are examining the potential for harvesting icebergs from Antarctica, which is estimated to have the biggest reserves of fresh water on the planet. Nations are also pressing ahead with space research and satellite projects to expand their global navigation abilities.

E) Building on a Soviet-era foothold, Russia is expanding its monitoring stations for Glonass, its version of the Global Positioning System (GPS). At least three Russian stations are already operating in Antarctica, part of its effort to challenge the dominance of the American GPS, and new stations are planned for sites like the Russian base, in the shadow of the Orthodox Church of the Holy Trinity.

F) Elsewhere in Antarctica, Russian researchers boast of their recent discovery of a freshwater reserve the size of Lake Ontario after drilling through miles of solid ice. "You can see that we're here to stay," said Vladimir Cheberdak, 57, chief of the Bellingshausen Station, as he sipped tea under a portrait of Fabian Gottlieb von Bellingshausen, a high-ranking officer in the Imperial Russian Navy who explored the Antarctic coast in 1820.

G) Antarctica's mineral, oil and gas wealth are a longer-term prize. The treaty banning mining here, shielding *coveted*（令人垂涎的）reserves of iron ore, coal and chromium, comes up for review in 2048. Researchers recently found *kimberlite*（金伯利岩）deposits hinting at the existence of diamonds. And while assessments vary widely, geologists estimate that Antarctica holds at least 36 billion barrels of oil and natural gas.

H) Beyond the Antarctic treaties, huge obstacles persist to tapping these resources, like drifting icebergs that could jeopardise offshore platforms. Then there is Antarctica's remoteness, with some mineral deposits found in windswept locations on a continent that is larger than Europe and where winter temperatures hover around minus 55 degrees Celsius.

I) But advances in technology might make Antarctica a lot more accessible three decades from now. And even before then, scholars warn, the demand for resources in an energy-hungry world could raise pressure to renegotiate Antarctica's treaties, possibly allowing more commercial endeavours here well before the prohibitions against them expire. The research stations on King George Island offer a glimpse into the long game on this ice-blanketed continent as nations assert themselves, eroding the sway long held by countries like the United States, Britain, Australia and New Zealand.

J) Being stationed in Antarctica involves adapting to life on the planet's driest, windiest and coldest continent, yet each nation manages to make itself at home. Bearded Russian priests offer regular services at the Orthodox church for the 16 or so Russian speakers who spend the winter at the base, largely polar scientists in fields like glaciology and meteorology. Their number climbs to about 40 in the warmer summer months. China has arguably the fastest-growing operations in Antarctica. It opened its fourth station last year and is pressing ahead with plans to build a fifth. It is building its second ice-breaking ship and setting up research drilling operations on an ice dome 13 422 feet above sea level that is one of the planet's coldest places. Chinese officials say the expansion in Antarctica prioritises scientific research, but they also acknowledge that concerns about "resource security" influence their moves.

K) China's newly renovated Great Wall Station on King George Island makes the Russian and Chilean bases here seem outdated. "We do weather monitoring here and other research," Ning Xu, 53, the chief of the Chinese base, said over tea during a fierce *blizzard* (暴风雪) in late November. The large base he leads resembles a snowed-in college campus on holiday break, with the capacity to sleep more than 10 times the 13 people who were staying on through the Antarctic winter. Yong Yu, a Chinese microbiologist, showed off the spacious building, with empty desks under an illustrated timeline detailing the rapid growth of China's Antarctic operations since the 1980s. "We now feel equipped to grow," he said.

L) As some countries expand operations in Antarctica, the United States maintains three year-round stations on the continent with more than 1 000 people during the southern hemisphere's summer, including those at the Amundsen-Scott station, built in 1956 at an elevation of 9 301 feet on a plateau at the South Pole. But US researchers quietly complain about budget restraints and having far fewer icebreakers than Russia, limiting the reach of the United States in Antarctica.

M) Scholars warn that Antarctica's political drift could blur the distinction between military and civilian activities long before the continent's treaties come up for renegotiation, especially in parts of Antarctica that are ideal for *intercepting* (拦截) signals from satellites or retasking satellite systems, potentially enhancing global electronic intelligence operations.

N) Some countries have had a hard time here. Brazil opened a research station in 1984, but it was largely destroyed by a fire that killed two members of the navy in 2012, the same year that a diesel-laden Brazilian barge sank near the base. As if that were not enough, a Brazilian C-130 Hercules military transport plane has remained stranded near the runway of Chile's air base here since it crash-landed in 2014.

O) However, Brazil's stretch of misfortune has created opportunities for China, with a Chinese company winning the $100 million contract in 2015 to rebuild the Brazilian station.

P) Amid all the changes, Antarctica maintains its allure. South Korea opened its second Antarctic research base in 2014, describing it as a way to test robots developed by Korean researchers for use in extreme conditions. With Russia's help, Belarus is preparing to build its first Antarctic base. Colombia said this year that it planned to join other South American nations with bases in Antarctica.

Q) "The old days of the Antarctic being dominated by the interests and wishes of white men from European, Australasian and North American states are over," said Klaus Dodds, a politics scholar at the University of London who specialises in Antarctica. "The reality is that Antarctica is geopolitically contested."

36. According to Chinese officials, their activities in Antarctica lay greater emphasis on scientific research.
37. Efforts to create one of the world's largest ocean sanctuaries failed because of Russia's obstruction.
38. With several monitoring stations operating in Antarctica, Russia is trying hard to counter America's dominance in the field of worldwide navigational facilities.
39. According to geologists' estimates, Antarctica has enormous reserves of oil and natural gas.
40. It is estimated that Antarctica boasts of the richest reserves of fresh water on earth.
41. The demand for energy resources may compel renegotiation of Antarctica's treaties before their expiration.
42. Many countries are racing against each other to increase their business and strategic influence on Antarctica.
43. Antarctica's harsh natural conditions constitute huge obstacles to the exploitation of its resources.
44. With competition from many countries, Antarctica is no longer dominated by the traditional white nations.
45. American scientists complain about lack of sufficient money and equipment for their expansion in Antarctica.

阅读答案：J C E G D I B H Q L

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TEXT2

Six Potential Brain Benefits of Bilingual Education

A) Brains, brains, brains. People are fascinated by brain research. And yet it can be hard to point to places where our education system is really making use of the latest neuroscience(神经科学) findings. But there is one happy link where research is meeting practice: bilingual(双语的) education. “In the last 20 years or so, there's been a virtual explosion of research on bilingualism,” says Judith Kroll, a professor at the University of California, Riverside.

B) Again and again, researchers have found, “bilingualism is an experience that shapes our brain for life,” in the words of Gigi Luk, an associate professor at Harvard's Graduate School of Education. At the same time, one of the hottest trends in public schooling is what’s often called dual-language or two-way immersion programs.

C) Traditional programs for English-language learners, or ELLs, focus on assimilating students into English as quickly as possible. Dual-language classrooms, by contrast, provide instruction across subjects to both English natives and English learners, in both English and a target language. The goal is functional bilingualism and biliteracy for all students by middle school. New York City, North Carolina, Delaware, Utah, Oregon and Washington state are among the places expanding dual-language classrooms.

D) The trend flies in the face of some of the culture wars of two decades ago, when advocates insisted on “English first” education. Most famously, California passed Proposition 227 in 1998. It was intended to sharply reduce the amount of tie that English-language learners spent in bilingual settings. Proposition 58, passed by California voters on November 8, largely reversed that decision, paving the way for a huge expansion of bilingual education in the state that has the largest population of English-language learners.

E) Some of the insistence on English-first was founded on research produced decades ago, in which bilingual students underperformed monolingual(单语的) English speakers and had lower IQ scores. Today’s scholars, like Ellen Bialystok at York University in Toronto, say that research was “deeply flawed.” “Earlier research looked at socially disadvantaged groups,” agrees Antonella Sorace at the University of Edinburgh in Scotland. “This has been completely contradicted by recent research” that compares groups more similar to each other.

F) So what does recent research say about the potential benefits of bilingual education? It turns out that, in many ways, the real trick to speaking two languages consists in managing not to speak one of those languages at a given moment—which is fundamentally a feat of paying attention. Saying “Goodbye” to mom and then “Guten tag” to your teacher, or managing to ask for a crayola roja instead of a red crayon(蜡笔), requires skills called “inhibition” and “task switching.” These skills are subsets of an ability called executive function.

G) People who speak two languages often outperform monolinguals on general measures of executive function. “Bilinguals can pay focused attention without being distracted and also improve in the ability to switch from one task to another,” says Sorace.

H) Do these same advantages benefit a child who begins learning a second language in kindergarten instead of as a baby? We don't yet know. Patterns of language learning and language use are complex. But Gigi Luk at Harvard cites at least one brain-imaging study on adolescents that shows similar changes in brain structure when compared with those who are bilingual from birth, even when they didn't begin practicing a second language in earnest before late childhood.

I) Young children being raised bilingual have to follow social cues to figure out which language to use with which person and in what setting. As a result, says Sorace, bilingual children as young as age 3 have demonstrated a head start on tests of perspective-taking and theory of mind—both of which are fundamental social and emotional skills.

J) About 10 percent of students in the Portland, Oregon public schools are assigned by lottery to dual-language classrooms that offer instruction in Spanish, Japanese or Mandarin, alongside English. Jennifer Steele at American University conducted a four-year, randomized trial and found that the dual-language students outperformed their peers in English-reading skills by a full school-year’s worth of learning by the end of middle school. Because the effects are found in reading, not in math or science where there were few differences, Steele suggests that learning two languages make students more aware of how language works in general.

K) The research of Gigi Luk at Harvard offers a slightly different explanation. She has recently done a small study looking at a group of 100 fourth-graders in Massachusetts who had similar reading scores on a standard test, but very different language experiences. Some were foreign-language dominant and others were English natives. Here's what’s interesting. The students who were dominant in a foreign language weren't yet comfortably bilingual; they were just starting to learn English. Therefore, by definition, they had a much weaker English vocabulary than the native speakers. Yet they were just as good at interpreting a text. “This is very surprising,” Luk says. ”You would expect the reading comprehension performance to mirror the vocabulary—it’s a cornerstone of comprehension.”

L) How did the foreign-language dominant speakers manage this feat? Well, Luk found, they also scored higher on tests of executive functioning. So, even though they didn't have huge mental dictionaries to draw on, they may have been great puzzle-solvers, taking into account higher-level concepts such as whether a single sentence made sense within an overall storyline. They got to the same results as the monolinguals, by a different path.

M) American public school classrooms as a whole are becoming more segregated by race and class. Dual-language programs can be an exception. Because they are composed of native English speakers deliberately placed together with recent immigrants, they tend to be more ethnically and economically balanced. And there is some evidence that this helps kids of all backgrounds gain comfort with diversity and different cultures.

N) Several of the researchers also pointed out that, in bilingual education, non-English-dominant students and their families tend to feel that their home language is heard and valued, compared with a classroom where the home language is left at the door in favor of English. This can improve students' sense of belonging and increase parents' involvement in their children's education, including behaviors like reading to children. “Many parents fear their language is an obstacle, a problem, and if they abandon it their child will integrate better,” says Antonella Sorace of the University of Edinburgh. “We tell them they’re not doing their child a favor by giving up their language.”

O) One theme that was striking in speaking to all these researchers was just how strongly they advocated for dual-language classrooms. Thomas and Collier have advised many school systems on how to expand their dual language programs, and Sorace runs “bilingualism Matters,” an international network of researchers who promote bilingual education projects. This type of advocacy among scientists is unusual; even more so because the “bilingual advantage hypothesis” is being challenged once again.

P) A review of studies published last year found that cognitive advantages failed to appear in 83 percent of published studies, though in a separate analysis, the sum of effects was still significantly positive. One potential explanation offered by the researchers is that advantages that are measurable in the very young and very old tend to fade when testing young adults at the peak of their cognitive powers. And, they countered that no negative effects of bilingual education have been found. So, even if the advantages are small, they are still worth it. Not to mention one obvious, outstanding fact: “Bilingual children can speak two languages!”

36. A study found that there are similar changes in brain structure between those who are bilingual from birth and those who start learning a second language later.

37. Unlike traditional monolingual programs, bilingual classrooms aim at developing students' ability to use two languages by middle school.

38. A study showed that dual-language students did significantly better than their peers in reading English texts.

39. About twenty years ago, bilingual practice was strongly discouraged, especially in California.

40. Ethnically and economically balanced bilingual classrooms are found to be helpful for kids to get used to social and cultural diversity.

41. Researchers now claim that earlier research on bilingual education was seriously flawed.

42. According to a researcher, dual-language experiences exert a lifelong influence on one's brain.

43. Advocates of bilingual education argued that it produces positive effects though they may be limited.

44. Bilingual speakers often do better than monolinguals in completing certain tasks because they can concentrate better on what they are doing.

45. When their native language is used, parents can become more involved in their children's education.

阅读答案：H C J D M E B P G N

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TEXT3

How Telemedicine Is Transforming Healthcare

A) After years of big promises, telemedicine is finally living up to its potential. Driven by faster internet connections, ubiquitous(无处不在的) smartphones and changing insurance standards, more health providers are turning to electronic communications to do their jobs—and it's dramatically changing the delivery of healthcare.

B) Doctors are linking up with patients by phone, email and webcam(网络摄像头) . They're also consulting with each other electronically—sometimes to make split second decisions on heart attacks and strokes. Patients, meanwhile, are using new devices to relay their blood pressure, heart rate and other vital signs to their doctors so they can manage chronic conditions at home. Telemedicine also allows for better care in places where medical expertise is hard to come by. Five to 10 times a day, Doctors Without Borders relays questions about tough cases from its physicians in Niger, South Sudan and elsewhere to its network of 280 experts around the world, and back again via internet.

C) As a measure of how rapidly telemedicine is spreading, consider: More than 15 million Americans received some kind of medical care remotely last year, according to the American Telemedicine Association, a trade group, which expects those numbers to grow by 30% this year.

D) None of this is to say that telemedicine has found its way into all comers of medicine. A recent survey of 500 tech-savvy(精通技术的) consumers found that 39% hadn't heard of telemedicine, and of those who haven't used it, 42% said they preferred in-person doctor visits. In a poll of 1500 family physicians, only 15% had used it in their practices—but 90% said they would if it were appropriately reimbursed(补偿) .

E) What's more, for all the rapid growth, significant questions and challenges remain. Rules defining and regulating telemedicine differ widely from state to state. Physicians groups are issuing different guidelines about what care they consider appropriate to deliver and in what form.

F) Some critics also question whether the quality of care is keeping up with the rapid expansion of telemedicine. And there's the question of what services physicians should be paid for: Insurance coverage varies from health plan to health plan, and a big federal plan covers only a narrow range of services. Telemedicine's future will depend on how—and whether—regulators, providers, payers and patients can address these challenges. Here's a closer look at some of these issues:

G) Do patients trade quality for convenience? The fastest-growing services in telemedicine connect consumers with clinicians they've never met for a phone, video or email visit—on-demand, 24/7. Typically, these are for nonemergency issues such as colds, flu, ear-aches and skin rashes, and they cost around $45, compared with approximately $100 at a doctor's office, $160 at an urgent-care clinic or $750 and up at an emergency room.

H) Many health plans and employers have rushed to offer the services and promote them as a convenient way for plan members to get medical care without leaving home or work. Nearly three-quarters of large employers will offer virtual doctor visits as a benefit to employees this year, up from 48% last year. Web companies such as Tel a doc and American Well are expected to host some 1.2 million such virtual doctor visits this year, up 20% from last year, according to the American Telemedicine Association.

I) But critics worry that such services maybe sacrificing quality for convenience. Consulting a random doctor patients will never meet, they say, further fragments the health-care system, and even minor issues such as upper respiratory(上呼吸道的) infections can't be thoroughly evaluated by a doctor who can't listen to your heart or feel your swollen glands. In a recent study, researchers posing as patients with skin problems sought help from 16 telemedicine sites—with unsettling results. In 62 encounters, fewer than one-third disclosed clinicians' credential or let patients choose; only 32% discussed potential side effects of prescribed medications. Several sites misdiagnosed serious conditions, largely because they failed to ask basic follow-up questions, the researchers said. "Telemedicine holds enormous promise, but these sites are just not ready for prime time," says Jack Res neck, the study's lead author.

J) The American Telemedicine Association and other organizations have started accreditation(鉴定) programs to identify top-quality telemedicine sites. The American Medical Association this month approved new ethical guidelines for telemedicine, calling for participating doctors to recognize the limitations of such services and ensure that they have sufficient information to make clinical recommendations.

K) Who pays for the services? While employers and health plans have been eager to cover virtual urgent-care visits, insurers have been far less willing to pay for telemedicine when doctors use phone, email or video to consult with existing patients about continuing issues. "It's very hard to get paid unless you physically see the patient," says Peter Rasmussen, medical director of distance health at the Cleveland Clinic. Some 32 states have passed "parity"(等同的) laws requiring private insurers to reimburse doctors for services delivered remotely if the same service would be covered in person, though not necessarily at the same rate or frequency. Medicare lags further behind. The federal health plan for the elderly covers a small number of telemedicine services—only for beneficiaries in rural areas and only when the services are received in a hospital, doctor's office or clinic.

L) Bills to expand Medicare coverage of telemedicine have bipartisan(两党的) support in Congress. Opponents worry that such expansion would be costly for taxpayers, but advocates say it would save money in the long run.

M) Experts say more hospitals are likely to invest in telemedicine systems as they move away from fee-for-service payments and into managed-care-type contracts that give them a set fee to provide care for patients and allow them to keep any savings they achieve.

N) Is the state-by-state regulatory system outdated? Historically, regulation of medicine has been left to individual states. But some industry members contend that having 50 different sets of rules, licensing fees and even definitions

of “medical practice" makes less sense in the era of telemedicine and is hampering its growth. Currently, doctors must have a valid license in the state where the patient is located to provide medical care, which means virtual-visit companies can match users only with locally licensed clinicians. It also causes administrative hassles(麻烦) for world-class medical centers that attract patients from across the country. At the Mayo Clinic, doctors who treat out-of-state patients can follow up with them via phone, email or web chats when they return home, but they can only discuss the conditions they treated in person. “If the patient wants to talk about a new problem, the doctor has to be licensed in that state to discuss it. If not, the patient should talk to his primary-care physician about it,” says Steve Ommen, who runs Mayo's Connected Care program.

O) To date, 17 states have joined a compact that will allow a doctor licensed in one member state to quickly obtain a license in another. While welcoming the move, some telemedicine advocates would prefer states to automatically honor one another's licenses, as they do with drivers' licenses. But states aren’t likely to surrender control of medical practice, and most are considering new regulations. This year, more than 200 telemedicine-related bills have been introduced in 42 states, many regarding what services Medicaid will cover and whether payers should reimburse for remote patient monitoring. “A lot of states are still trying to define telemedicine,” says Lisa Robbin, chief advocacy officer for the Federation of State Medical Boards.

36. An overwhelming majority of family physicians are willing to use telemedicine if they are duly paid.

37. Many employers are eager to provide telemedicine service as a benefit to their employees because of its convenience.

38. Different states have markedly different regulations for telemedicine.

39. With telemedicine, patients in regions short of professional medical service are able to receive better medical care.

40. Unlike employers and health plans, insurers have been rather reluctant to pay for some telemedicine services.

41. Some supporters of telemedicine hope states will accept each other's medical practice licenses as valid.

42. The fastest growing area for telemedicine services is for lesser health problems.

43. As telemedicine spreads quickly, some of its opponents doubt whether its service quality can be guaranteed.

44. The results obtained by researchers who pretended to be patients seeking help from telemedicine providers are disturbing.

45. Some people argue that the fact that different states have different regulations concerning medical services hinders the development of telemedicine.

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TEXT4

The Price of Oil and the Price of Carbon

A) A group of corn farmers stands huddled around an *agronomist (*农学家)and his computer on the side of an irrigation machine in central South Africa. The agronomist has just flown over the field with a hybrid unmanned aerial vehicle (UAV) that takes off and lands using propellers yet maintains distance and speed for scanning vast hectares of land through the use of its fixed wings.

B) The UAV is fitted with a four spectral band precision sensor that conducts onboard processing immediately after the flight, allowing farmers and field staff to address, almost immediately, any crop abnormalities that the sensor may have recorded, making the data collection truly real-time.

C) In this instance, the farmers and agronomist are looking to specialized software to give them an accurate plant population count. It's been 10 days since the corn emerged and the farmer wants to determine if there are any parts of the field that require replanting due to a lack of emergence or wind damage, which can be severe in the early stages of the summer rainy season.

D) At this growth stage of the plant's development, the farmer has another 10 days to conduct any replanting before the majority of his fertilizer and chemical applications need to occur. Once these have been applied, it becomes economically unviable to take corrective action, making any further collected data historical and useful only to inform future practices for the season to come.

E) The software completes its processing in under 15 minutes producing a plant population count map. It's difficult to grasp just how impressive this is, without understanding that just over a year ago it would have taken three to five days to process the exact same data set, illustrating the advancements that have been achieved in precision agriculture and remote sensing in recent years. With the software having been developed in the United States on the same variety of crops in seemingly similar conditions, the agronomist feels confident that the software will produce a near accurate result.

F) As the map appears on the screen, the agronomist's face begins to drop. Having walked through the planted rows before the flight to gain a physical understanding of the situation on the ground, he knows the instant he sees the data on his screen that the plant count is not correct, and so do the farmers, even with their limited understanding of how to read remote sensing maps.

G) Hypothetically, it is possible for machines to learn to solve any problem on earth relating to the physical

interaction of all things within a defined or contained environment by using artificial intelligence and machine learning.

H) Remote sensors enable *algorithms* (算法)to interpret a field's environment as statistical data that can be understood and useful to farmers for decision-making. Algorithms process the data, adapting and learning based on the data received. The more inputs and statistical information collected, the better the algorithm will be at predicting a range of outcomes. And the aim is that farmers can use this artificial intelligence to achieve their goal of a better harvest through making better decisions in the field.

I) In 2011, IBM, through its R&D Headquarters in Haifa, Israel, launched an agricultural cloud-computing project. The project, in collaboration with a number of specialized IT and agricultural partners, had one goal in mind—to take a variety of academic and physical data sources from an agricultural environment and turn these into automatic predictive solutions for farmers that would assist them in making real-time decisions in the field.

J) Interviews with some of the IBM project team members at the time revealed that the team believed it was entirely possible to "algorithm" agriculture, meaning that algorithms could solve any problem in the world. Earlier that year, IBM's cognitive learning system, Watson, competed in the game Jeopardy against former winners Brad Rutter and Ken Jennings with astonishing results. Several years later, Watson went on to produce ground-breaking achievements in the field of medicine.

K) So why did the project have such success in medicine but not agriculture? Because it is one of the most difficult fields to contain for the purpose of statistical quantification. Even within a single field, conditions are always changing from one section to the next. There's unpredictable weather, changes in soil quality, and the ever-present possibility that pests and diseases may pay a visit. Growers may feel their prospects are good for an upcoming harvest, but until that day arrives, the outcome will always be uncertain.

L) By comparison, our bodies are a contained environment. Agriculture takes place in nature, among ecosystems of interacting organisms and activity, and crop production takes place within that ecosystem environment. But these ecosystems are not contained. They are subject to climatic occurrences such as weather systems, which impact upon hemispheres as a whole, and from continent to continent. Therefore, understanding how to manage an agricultural environment means taking literally many hundreds if not thousands of factors into account.

M) What may occur with the same seed and fertilizer program in the United States' Midwest region is almost certainly unrelated to what may occur with the same seed and fertilizer program in Australia or South Africa. A few factors that could impact on variation would typically include the measurement of rain per unit of a crop planted, soil type, patterns of soil degradation, daylight hours, temperature and so forth.

N) So the problem with deploying machine learning and artificial intelligence in agriculture is not that scientists lack the capacity to develop programs and protocols to begin to address the biggest of growers' concerns; the problem is that in most cases, no two environments will be exactly alike, which makes the testing, validation and successful rollout of such technologies much more laborious than in most other industries.

O) Practically, to say that AI and Machine Learning can be developed to solve all problems related to our

physical environment is to basically say that we have a complete understanding of all aspects of the interaction of physical or material activity on the planet. After all, it is only through our understanding of "the nature of things" that protocols and processes are designed for the rational capabilities of cognitive systems to take place. And, although AI and Machine Learning are teaching us many things about how to understand our environment, we are still far from being able to predict critical outcomes in fields like agriculture purely through the cognitive ability of machines.

P) Backed by the venture capital community, which is now investing billions of dollars in the sector, most agricultural technology startups today are pushed to complete development as quickly as possible and then encouraged to flood the market as quickly as possible with their products.

Q) This usually results in a failure of a product, which leads to skepticism from the market and delivers a blow to the integrity of Machine Learning technology. In most cases, the problem is not that the technology does not work, the problem is that industry has not taken the time to respect that agriculture is one of the most uncontained environments to manage. For technology to truly make an impact on agriculture, more effort, skills, and funding is needed to test these technologies in farmers' fields.

R) There is huge potential for artificial intelligence and machine learning to revolutionize agriculture by integrating these technologies into critical markets on a global scale. Only then can it make a difference to the grower, where it really counts.

36. Farmers will not profit from replanting once they have applied most of the fertilizer and other chemicals to their fields.

37. Agriculture differs from the medical science of the human body in that its environment is not a contained one.

38. The agronomist is sure that he will obtain a near accurate count of plant population with his software.

39. The application of artificial intelligence to agriculture is much more challenging than to most other industries.

40. Even the farmers know the data provided by the UAV is not correct.

41. The pressure for quick results leads to product failure, which, in turn, arouses doubts about the applicability of AI technology to agriculture.

42. Remote sensors are aimed to help farmers improve decision-making to increase yields.

43. The farmer expects the software to tell him whether he will have to replant any parts of his farm fields.

44. Agriculture proves very difficult to quantify because of the constantly changing conditions involved.

45. The same seed and fertilizer program may yield completely different outcomes in different places.

阅读答案：D L　E N F Q H C K M

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TEXT5

Slow Hope

A) Our world is full of—mostly untold—stories of slow hope, driven by the idea that change is possible. They are 'slow' in their unfolding, and they are slow because they come with setbacks.

B) At the beginning of time—so goes the myth—humans suffered, shivering in the cold and dark until the *titan* (巨人)Prometheus stole fire from the gods. Just as in the myth, technology—first fire and stone tools, and later farming, the steam engine and industry, fossil fuels, chemicals and nuclear power—has allowed us to alter and control the natural world. The myth also reminds us that these advances have come at a price: as a punishment for Prometheus' crime, the gods created Pandora, and they gave her a box filled with evils and curses. When Pandora's box was opened, it unleashed swarms of diseases and disasters upon humankind.

C) Today we can no longer ignore the ecological curses that we have released in our search for warmth and comfort. In engineering and exploiting and transforming our habitat, we have opened tens of thousands of Pandora's boxes. In recent decades, environmental threats have expanded beyond regional boundaries to have global reach and, most hauntingly, are multiplying at a dizzying rate. On a regular basis, we are reminded that we are running out of time. Year after year, faster and faster, consumption outpaces the biological capacity of our planet. Stories of accelerated catastrophe multiply. We fear the breakdown of the electric grid, the end of non-renewable resources, the expansion of deserts, the loss of islands, and the pollution of our air and water.

D) Acceleration is the signature of our time. Populations and economic activity grew slowly for much of human history. For thousands of years and well into early modern times, world economies saw no growth at all, but from around the mid-19th century and again, in particular, since the mid-20th, the real GDP has increased at an enormous speed, and so has human consumption. In the Middle Ages, households in Central Europe might have owned fewer than 30 objects on average; in 1900, this number had increased to 400, and in 2020 to 15,000. The acceleration of human production, consumption and travel has changed the animate and inanimate spheres. It has echoed through natural processes on which humans depend. Species extinction, deforestation, damming of rivers, occurrence of floods, the depletion of ozone, the degradation of ocean systems and many other areas are all experiencing acceleration. If represented graphically, the curve for all these changes looks rather like that well-known hockey stick: with little change over *millennia* (数千年) and a dramatic upswing over the past decades.

E) Some of today's narratives about the future seem to suggest that we too, like Prometheus, will be saved by a new Hercules, a divine engineer, someone who will mastermind, manoeuvre and manipulate our planet. They suggest that geoengineering, cold fusion or faster-than-light spaceships might transcend once and for all the terrestrial constraints of rising temperatures, lack of energy, scarcity of food, lack of space, mountains of waste, polluted water—you name it.

F) Yet, if we envisage our salvation to come from a *deus ex machina* (解围之神)，from a divine engineer or a tech solutionist who will miraculously conjure up a new source of energy or another cure-all with revolutionary potency, we might be looking in the wrong place. The fact that we now imagine our planet as a whole does not mean that the 'rescue' of our planet will come with one big global stroke of genius and technology. It will more likely come by many small acts. Global heating and environmental degradation are not technological problems. They are highly political issues that are informed by powerful interests. Moreover, if history is a guide, then we can assume that any major transformations will once again be followed by a huge set of unintended consequences. So what do we do?

G) This much is clear: we need to find ways that help us flatten the hockey-stick curves that reflect our ever-faster pace of ecological destruction and social acceleration. If we acknowledge that human manipulation of the Earth has been a destructive force, we can also imagine that human endeavours can help us build a less destructive world in the centuries to come. We might keep making mistakes. But we will also keep learning from our mistakes.

H) To counter the fears of disaster, we need to identify stories, visions and actions that work quietly towards a more hopeful future. Instead of one big narrative, a story of unexpected rescue by a larger-than-life hero, we need multiple stories: we need stories, not only of what Rob Nixon of Princeton University has called the 'slow violence' of environmental degradation (that is, the damage that is often invisible at first and develops slowly and gradually), but also stories of what I call 'slow hope'.

I) We need an acknowledgement of our present ecological plight but also a language of positive change, visions of a better future. In *The Principle of Hope* (1954-1959), Ernst Bloch, one of the leading philosophers of the future, wrote that 'the most tragic form of loss...is the loss of the capacity to imagine that things could be different'. We need to identify visions and paths that will help us imagine a different, more just and more ecological world. Hope, for Bloch, has its starting point in fear, in uncertainty, and in crisis: it is a creative force that goes hand in hand with *utopian* (乌托邦的)'wishful images'. It can be found in cultural products of the past — in fairy tales, in fiction, in architecture, in music, in the movie — in products of the human mind that contain 'the outlines of a better world'. What makes us 'authentic' as humans are visions of our 'potential'. In other words: living in hope makes us human.

J) The power of small, grassroots movements to make changes that spread beyond their place of origin can be seen with the Slow Food movement, which began in Italy in the 1980s. The rise of fast-food restaurants after the Second World War produced a society full of cheap, industrially made foodstuffs. Under the leadership of Carlo Petrini, the Slow Food movement began in Piedmont, a region of Italy with a long history of poverty, violence and resistance to oppression. The movement transformed it into a region hospitable to traditional food cultures — based on native plants and breeds of animals. Today, Slow Food operates in more than 160 countries, poor and rich. It has given rise to thousands of projects around the globe, representing democratic politics, food sovereignty, biodiversity and sustainable agriculture.

K) The *unscrupulous* (无所顾忌的)commodification of food and the destruction of foodstuffs will continue to devastate soils, livelihoods and ecologies. Slow Food cannot undo the irresistible developments of the global food economy, but it can upset its theorists, it can‘speak differently’, and it can allow people and their local food traditions and environments to flourish. Even in the United States—the fast-food nation —small farms and urban gardens are on the rise. The US Department of Agriculture provides an Urban Agriculture Toolkit and, according to a recent report, American *millennials* (千禧一代)are changing their diets. In 2017, 6 per cent of US consumers claimed to be strictly vegetarian, up from 1 per cent in 2014. As more people realise that ‘eating is an agricultural act’, as the US poet and environmental activist Wendell Berry put it in 1989, slow hope advances.

36. It seems some people today dream that a cutting-edge new technology might save them from the present ecological disaster.

37. According to one great thinker, it is most unfortunate if we lose the ability to think differently.

38. Urgent attention should be paid to the ecological problems we have created in our pursuit of a comfortable life.

39. Even in the fast-food nation America, the number of vegetarians is on the rise.

40. The deterioration of the ecological system is accelerating because of the dramatic increase of human production and consumption.

41. It is obvious that solutions must be found to curb the fast worsening environment and social acceleration.

42. Many people believe changing the world is possible, though it may take time and involve setbacks.

43. It might be wrong to expect that our world would be saved at one stroke with some miraculous technology.

44. It is human nature to cherish hopes for a better world.

45. Technology has given us humans the power to change the natural world, but we have paid a price for the change.

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TEXT6

Why Lifelong Learning Is the International Passport to Success

A) Picture yourself at a college graduation day, with a fresh *cohort* (一群)of students about to set sail for new horizons. What are they thinking while they throw their caps in the air? What is it with this thin sheet of paper that makes it so precious? It's not only the proof of acquired knowledge but plays into the reputation game of where you were trained. Being a graduate from Harvard Law School carries that extra glamour, doesn't it? Yet take a closer look, and the diploma is the perfect ending to the modern tragedy of education.

B) Why? Because universities and curricula are designed along the three unities of French classical tragedy: time, action, and place. Students meet at the university campus (unity of place) for classes (unity of action) during their 20s (unity of time). This classical model has traditionally produced prestigious universities, but it is now challenged by the digitalisation of society—which allows everybody who is connected to the internet to access learning — and by the need to acquire skills in step with a fast-changing world. Universities must realise that learning in your 20s won't be enough. If technological diffusion and implementation develop faster, workers will have to constantly refresh their skills.

C) The university model needs to evolve. It must equip students with the right skills and knowledge to compete in a world 'where value will be derived largely from human interaction and the ability to invent and interpret things that machines cannot'， as the English futurist Richard Watson puts it. By teaching foundational knowledge and up-to-date skills, universities will provide students with the future-proof skills of lifelong learning, not just get them 'job-ready'.

D) Some universities already play a critical role in lifelong learning as they want to keep the value of their diplomas. This new role comes with a huge set of challenges, and needs largely to be invented. One way to start this transformation process could be to go beyond the 'five-year diploma model' to adapt curricula to lifelong learning. We call this model the lifelong passport.

E) The Bachelor's degree could be your passport to lifelong learning. For the first few years, students would 'learn to learn' and get endowed with reasoning skills that remain with them for the rest of their lives. For instance, physics allows you to observe and rationalise the world, but also to integrate observations into models and, sometimes, models into theories or laws that can be used to make predictions. Mathematics is the language used to formulate the laws of physics or economy, and to make rigorous computations that turn into predictions. These two disciplines naturally form the foundational pillars of education in technical universities.

F) Recent advances in computational methods and data science push us into rethinking science and engineering. Computers increasingly become principal actors in leveraging data to formulate questions, which requires radically new ways of reasoning. Therefore, a new discipline blending computer science, programming, statistics and machine learning should be added to the traditional foundational topics of mathematics and physics. These three pillars would allow you to keep learning complex technical subjects all your life because *numeracy* (计算)is the foundation upon which everything else is eventually built.

G) According to this new model, the Master of Science (MSc) would become the first stamp in the lifelong learning journey. The MSc curriculum should prepare students for their professional career by allowing them to focus on acquiring practical skills through projects.

H) Those projects are then interwoven with fast-paced technical *modules* (模块)learned 'on-the-fly ' and 'at will' depending on the nature of the project. If, for instance, your project is developing an integrated circuit, you will have to take a module on advanced concepts in microelectronics. The most critical skills will be developed before the project even starts, in the form of *boot camps* (短期强化训练)，while the rest can be fostered along with the project, putting them to immediate use and thus providing a rich learning context.

I) In addition to technical capabilities, the very nature of projects develops social and entrepreneurial skills, such as design thinking, initiative taking, team leading, activity reporting or resource planning. Not only will those skills be actually integrated into the curriculum but they will be very important to have in the future because they are difficult to automate.

J) After the MSc diploma is earned, there would be many more stamps of lifelong learning over the years. If universities decide to engage in this learning model, they will have to cope with many organisational challenges that might shake their unity of place and action. First, the number of students would be unpredictable. If all of a university's *alumni* (往届毕业生)were to become students again, the student body would be much bigger than it is now, and it could become unsustainable for the campus in terms of both size and resources. Second, freshly graduated students would mix with professionally experienced ones. This would change the classroom dynamics, perhaps for the best. Project-based learning with a mixed team reflects the reality of the professional world and could therefore be a better preparation for it.

K) Sound like science fiction? In many countries, part-time studying is not exceptional: on average across OECD countries, part-time students in 2016 represented 20 per cent of enrolment in tertiary education. In many countries, this share is higher and can exceed 40 per cent in Australia, New Zealand and Sweden.

L) If lifelong learning were to become a priority and the new norm, diplomas, just like passports, could be revalidated periodically. A time-determined revalidation would ease administration for everybody. Universities as well as employers and employees would know when they have to retrain. For instance, graduates from the year 2000 would have to come back in 2005.

M) This could fix the main organisational challenges for the university, but not for the learners, due to lack of time, family obligations or funds. Here, online learning might be an option because it allows you to save your 'travel time', but it has its limits. So far, none of the major employers associated with online learning platforms such as Coursera and Udacity has committed to hire or even interview graduates of their new online programmes.

N) Even if time were not an issue, who will pay for lifelong learning? That's the eternal debate: should it be the learner's responsibility, that of his employer, or of the state? For example, in Massachusetts, the healthcare professions require continuing education credits, which are carefully evidenced and documented. Yet the same state's lawyers don't require continuing legal education, although most lawyers do participate in it informally. One explanation is that technology is less of a factor in law than it is in healthcare.

O) Europe has many scenarios, but the French and Swiss ones are interesting to compare. In France, every individual has a right to lifelong learning organised via a personal learning account that is credited as you work. In Switzerland, lifelong learning is a personal responsibility and not a government one. However, employers and the state encourage continuing education either by funding parts of it or by allowing employees to attend it.

P) Universities have a fundamental role to play in this journey, and higher education is in for a change. Just like classical theatre, the old university model produced talent and value for society. We are not advocating its abolition but rather calling for the adaptation of its characteristics to meet the needs of today.

36. Students should develop the key skills before they start a project.

37. By acquiring reasoning skills in the first few years of college, students can lay a foundation for lifelong learning.

38. The easy access to learning and rapid technological changes have brought the traditional model of education under challenge.

39. Unbelievable as it may seem, part-time students constitute a considerable portion of the student body in many universities across the world.

40. Some social and managerial skills, which are not easily automated, will be of great importance to students' future careers.

41. A new model of college education should provide students with the knowledge and skills that will make them more inventive and capable of lifelong learning.

42. A mixed student body may change the classroom dynamics and benefit learning.

43. The question of who will bear the cost of lifelong learning is a topic of constant debate.

44. To the traditional subjects of math and physics should be added a new discipline which combines computer science with statistics and other components.

45. Students who are burdened with family duties might choose to take online courses.

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TEXT7

The Best Retailers Combine Bricks and Clicks

A) Retail profits are falling sharply. Stores are closing. Malls are emptying. The depressing stories just keep coming. Reading the earnings announcements of large retail stores like Macy's, Nordstorm, and Target is about as uplifting as a tour of an intensive care unit. The interact is apparently taking do*wn yet another industry. Brick and mortar stores* (实体店) seem to be going the way of the yellow pages. Sure enough, the Census Bureau just released data showing that online retail sales surged 15.2 percent between the first quarter of 2015 and the first quarter of 2016.

B) But before you dump all of your retail stocks, there are more facts you should consider. Looking only at that 15.2 percent "surge" would be misleading. It was an increase that was on a small base of 6.9 percent. Even when a tiny number grows by a large percentage terms, it is often still tiny.

C) More than 20 years after the internet was opened to commerce, the Census Bureau tells us that brick and mortar sales accounted for 92.3 percent of retail sales in the first quarter of 2016. Their data show that only 0.8 percent of retail sales shifted from offline to online between the beginning of 2015 and 2016.

D) So, despite all the talk about drone (无人机) deliveries to your doorstep, all the retail executives expressing anxiety over consumers going online, and even a Presidential candidate exclaiming that Amazon has a "huge antitrust problem," the Census data suggest that physical retail is thriving. Of course, the closed stores, depressed executives, and sinking stocks suggest otherwise. What's the real story?

E) Many firms operating brick and mortar stores are in trouble. The retail industry is getting "reinvented," as we describe in our new book. *Matchmakers*. It's standing in the path of what Schumpeter called a *gale* (大风) of creative destruction. That storm has been brewing for some time, and as it has reached gale force, most large retailers are searching for a response. As the CFO of Macy's put it recently, "We're frankly scratching our heads."

F) But it's not happening as experts predicted. In the peak of the dot. com bubble, brick and mortar retail was one of those industries the internet was going to kill—and quickly. The dot.corn bust discredited most predictions of that sort and in the years that followed, conventional retailers' confidence in the future increased as Census continued to report weak online sales. And then the gale hit.

G) It is becoming increasingly clear that retail reinvention isn't a simple battle to the death between bricks and clicks. It is about devising retail models that work for people who are making increasing use of a growing array of internet-connected tools to change how they search, shop, and buy. Creative retailers are using the new technologies to innovate just about everything stores do from managing inventory, to marketing, to getting paid.

H) More than drones dropping a new supply of underwear on your doorstep, Apple's massively successful brick-and-mortar-and-glass retail stores and Amazon's small steps in the same direction are what should keep old-fashioned retailers awake at night. Not to mention the large number of creative new retailers, like Bonobos, that are blending online and offline experiences in creative ways.

I) Retail reinvention is not a simple process, and it's also not happening on what used to be called "Internet Time." Some internet-driven changes have happened quickly, of course. Craigslist quickly overtook newspaper classified ads and turned newspaper economics upside down. But many widely anticipated changes weren't quick, and some haven't really started. With the benefit of *hindsight* (后见之明), it looks like the interact will transform the economy at something like the pace of other great inventions like electricity. B2B commerce, for example, didn't move mainly online by 2005 as many had predicted in 2000, nor even by 2016, but that doesn't mean it won't do so over the next few decades.

J) But the gale is still blowing. The sudden decline in foot traffic in recent years, even though it hasn't been accompanied by a massive decline in physical sales, is a critical warning. People can shop more efficiently online and therefore don't need to go to as many stores to find what they want. There's a surplus of physical shopping space for the crowds, which is one reason why stores are downsizing and closing.

K) The rise of the mobile phone has recently added a new level of complexity to the process of retail reinvention. Even five years ago most people faced a choice. Sit at your computer, probably at home or at the office, search and browse, and buy. Or head out to the mall, or Main Street, look and shop, and buy. Now, just about everyone has a smartphone, connected to the internet almost everywhere almost all the time. Even when a retailer gets a customer to walk in the store, she can easily see if there's a better deal online or at another store nearby.

L) So far, the main thing many large retailers have done in response to all this is to open online stores, so people will come to them directly rather than to Amazon and its smaller online rivals. Many are having the same problem that newspapers have. Even if they get online traffic, they struggle to make enough money online to compensate for what they are losing offline.

M) A few seem to be making this work. Among large traditional retailers, Walmart recently reported the best results, leading its stock price to surge, while Macy's, Target, and Nordstrom's dropped. Yet Walmart's year-over-year online sales only grew 7 percent, leading its CEO to *lament* (哀叹), "Growth here is too slow. "Part of the problem is that almost two decades after Amazon filed the one. click patent, the online retail shopping and buying experience is filled with frictions. A recent study graded more than 600 internet retailers on how easy it was for consumers to shop, buy, and pay. Almost half of the sites didn't get a passing grade and only 18 percent got an A or B.

N) The turmoil on the ground in physical retail is hard to square with the Census data. Unfortunately, part of the explanation is that the Census retail data are unreliable. Our deep 100k into those data and their preparation revealed serious problems. It seems likely that Census simply misclassifies a large chunk of online sales. It is certain that the Census procedures, which lump the online sales of major traditional retailers like Walmart with"non-store retailers"1ike food trucks. can mask major changes in individual retail categories. The bureau could easily present their data in more useful ways. but they have chosen not to.

O) Despite the turmoil, brick and mortar won't disappear any time soon. The big questions are which, if any, of the large traditional retailers will still be on the scene in a decade or two because they have successfully reinvented themselves, which new players will operate busy stores on Main Streets and maybe even in shopping malls, and how the shopping and buying experience will have changed in each retail category. Investors shouldn't write off brick and mortar. Whether they should bet on the traditional players who run those stores now is another matter

36.Although online retailing has existed for some twenty years, nearly half of the internet retailers still fail to receive satisfactory feedback from consumers, according to a recent survey.

37.Innovative retailers integrate internet technologies with conventional retailing to create new retail models.

38.Despite what the Census data suggest, the value of physical retail's stocks has been dropping.

39.Innovative-driven changes in the retail industry didn't take place as quickly as widely anticipated.

40. Statistics indicate that brick and mortar sales still made up the lion's share of the retail business.

41. Companies that successfully combine online and offline business models may prove to be a big concern for traditional retailers.

42.Brick and mortar retailers' faith in their business was strengthened when the dot com bubble burst.

43. Despite the tremendous challenges from online retailing, traditional retailing will be here to stay for quite some time.

44. With the rise of online commerce, physical retail stores are likely to suffer the same fate as i the yellow pages.

45. The wide use of smartphones has made it more complex for traditional retailers to reinvent their business.

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TEXT8

Companies Are Working with Consumers to Reduce Waste

A) As consumers, we are very wasteful. Annually, the world generates 1.3 billion tons of solid waste. This is expected to go up to 2.2 billion by 2025. The developed countries are responsible for 44% of waste, and in the U.S. alone, the average person throws away their body weight in rubbish every month.

B) Conventional wisdom would seem to suggest that companies have no incentive to lengthen the life cycle of their products and reduce the revenue they would get from selling new goods. Yet, more and more businesses are thinking about how to reduce consumer waste. This is partly driven by the rising price of raw materials and metals. It is also partly due to both consumers and companies becoming more aware of the need to protect our environment.

C) When choosing what products to buy and which brands to buy from, more and more consumers are looking into sustainability. This is opposed to just price and performance they were concerned about in the past. In a survey of 54 of the world's leading brands, almost all of them reported that consumers are showing increasing care about sustainable lifestyles. At the same time, surveys on consumers in the U.S. and the U.K. show that they also care about minimizing energy use and reducing waste.

D) For the most part, consumers control what happens to a product. But some companies are realizing that placing the burden of recycling entirely on the consumer is not an effective strategy, especially when tossing something away seems like the easiest and most convenient option.

E) Some retailers and manufacturers in the clothing, footwear, and electronics industries have launched environmental programs. They want to make their customers interested in preserving their products and preventing things that still have value from going to the garbage dump. By offering services to help expand the longevity of their products, they're promising quality and durability to consumers, and receiving the reputational gains for being environmentally friendly.

F) For example, the Swedish jeans company Nudie Jeans offers free repair at twenty of their shops. Instead of discarding their old worn-out jeans, customers bring them in to be renewed. The company even provides mail-order repair kits and online videos, so that customers can learn how to fix a pair of jeans at home. Their philosophy is that extending the life of a pair of jeans is not only great for the environment, but allows the consumer to get more value out of their product. When customers do want to toss their pair, they can give them back to the store, which will repurpose and resell them. Another clothing company, Patagonia, a high-end outdoor clothing store, follows the same principle. It has partnered with DIY website iFixit to teach consumers how to repair their clothing, such as waterproof outerwear, at home. The company also offers a repair program for their customers for a modest fee. Currently, Patagonia repairs about 40,000 garments a year in their Reno, Nevada, service center. According to the company's CEO, Rose Marcario, this is about building a company that cares about the environment. At the same time, offering repair supports the perceived quality of its products.

G) In Brazil, the multinational corporation Adidas has been running a shoe-recycling program called "Sustainable Footprint" since 2012. Customers can bring shoes of any brand into an Adidas store to be shredded and turned into alternative fuels for energy creation instead of being burned as trash. They are used to fuel cement ovens. To motivate visitors to bring in more old shoes, Adidas Brazil promotes the program in stores by showing videos to educate customers, and it even offers a discount each time a customer brings in an old pair of shoes. This boosts the reputation and image of Adidas by making people more aware of the company's values.

H) Enormous opportunities also lie with e-waste. It is estimated that in 2014 the world produced some 42 million metric tons of e-waste (discarded electrical and electronic equipment and its parts) with North America and Europe accounting for 8 and 12 million metric tons respectively. The materials from e-waste include iron, copper, gold, silver, and aluminum—materials that could be reused, resold, salvaged, or recycled. Together, the value of these metals is estimated to be about $52 billion. Electronics giants like Best Buy and Samsung have provided e-waste take-back programs over the past few years, which aim to *refurbish* (翻新) old electronic components and parts into

new products.

I) For other companies interested in reducing waste, helping the environment, and providing the sustainable lifestyles that consumers seek, here are some first steps for building a relationship with customers that focuses on recycling and restoring value to products:

J) Find partners. If you are a manufacturer who relies on outside distributors, then retailers are the ideal partner for collecting old products. Power tool maker DeWalt partners with companies, such as Lowes and Napa Auto Parts, to collect old tools at their stores for recycling. The partnership benefits both sides by allowing unconventional partners (for example, two companies from two different industries) to work together on a specific aspect of the value chain, like, in this example, an engine firm with an accessory one.

K) Create incentives. Environmental conscientiousness isn't always enough to make customers recycle old goods. For instance, DeWalt discovered that many contractors were holding on to their old tools, even if they no longer worked, because they were expensive purchases and it was hard to justify bringing them in to recycle. By offering instant discounts worth as much as $100, DeWalt launched a trade-in program to encourage people to bring back tools. As a result, DeWalt now reuses those materials to create new products.

L) Start with a trial program, and expect to change the details as you go. Any take-back program will likely change over time, depending on what works for your customers and company goals. Maybe you see low customer participation at first, or conversely, so much success that the cost of recycling becomes too high. Best Buy, for instance, has been bearing the lion's share of e-waste volume since two of its largest competitors, Amazon and Wal-mart, do not have their own recycling programs. Since the launch of its program, Best Buy changed its policy to add a $25 fee for recycling old televisions in order to keep the program going.

M) Build a culture of collective values with customers. A stronger relationship between the retailer/producer and the consumer isn't just about financial incentives. By creating more awareness around your efforts to reduce waste, and by developing a culture of responsibility, repair, and reuse, you can build customer loyalty based on shared values and responsibilities.

N) These examples are just the tip of the iceberg, but they demonstrate how helping customers get more use of their materials can transform value chains and operations. Reducing waste by incorporating used materials into production can cut costs and decrease the price of *procurement* (采购): less to be procured from the outside and more to be re-utilized from the inside.

O) Companies play a big role in creating a circular economy, in which value is generating less from extracting new resources and more from getting better use out of the resources we already have—but they must also get customers engaged in the process.

36. Some companies believe that products' prolonged lifespan benefits both the environment and customers.

37. A survey shows shoppers today are getting more concerned about energy conservation and environmental protection when deciding what to buy.

38. Companies can build customer loyalty by creating a positive culture of environmental awareness.

39. When companies launch environmental programs, they will have their brand reputation enhanced.

40. One multinational company offers discounts to customers who bring in old footwear to be used as fuel.

41. Recycling used products can help manufacturers reduce production costs.

42. Electronic products contain valuable metals that could be recovered.

43. It seems commonly believed that companies are not motivated to prolong their products' lifespan.

44. It is advisable for companies to partner with each other in product recycling.

45. Some businesses have begun to realize it may not be effective to let consumers take full responsibility for recycling.

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TEXT9

The future of personal satellite technology is here—are we ready for it?

A) Satellites used to be the exclusive playthings of rich governments and wealthy corporations. But increasingly, as space becomes more democratized, they are coming within reach of ordinary people. Just like *drones* (无人机) before them, miniature satellites are beginning to fundamentally transform our conceptions of who gets to do what up above our heads.

B) As a recent report from the National Academy of Sciences highlights, these satellites hold tremendous potential for making satellite-based science more accessible than ever before. However, as the cost of getting your own satellite in orbit drops sharply, the risks of irresponsible use grow. The question here is no longer"Can we?"but"Should we?"What are the potential downsides of having a slice of space densely populated by equipment built by people not traditionally labeled as"professionals"? And what would the responsible and beneficial development and use of this technology actually look like? Some of the answers may come from a nonprofit organization that has been building and launching amateur satellites for nearly 50 years.

C) Having your personal satellite launched into orbit might sound like an idea straight out of science fiction. But over the past few decades a unique class of satellites has been created that fits the bill: CubeSats. The"Cube"here simply refers to the satellite's shape. The most common CubeSat is a 10cm cube, so small that a single CubeSat could easily be mistaken for a paperweight on your desk. These mini-satellites can fit in a launch vehicle's formerly"wasted space."Multiples can be deployed in combination for more complex missions than could be achieved by one CubeSat alone.

D) Within their compact bodies these minute satellites are able to house sensors and communications receivers/transmitters that enable operators to study Earth from space, as well as space around Earth. They're primarily designed for Low Earth Orbit (LEO)—an easily accessible region of space from around 200 to 800 miles above Earth, where human-tended missions like the Hubble Space Telescope and the International Space Station (ISS) hang out. But they can attain more distant orbits; NASA plans for most of its future Earth-escaping payloads (to the moon and Mars especially) to carry CubeSats.

E) Because they're so small and light, it costs much less to get a CubeSat into Earth's orbit than a traditional communications or GPS satellite. For instance, a research group here at Arizona State University recently claimed their developmental small CubeSats could cost as little as $3,000 to put in orbit. This decrease in cost a11ows researchers, hobbyists and even elementary school groups to put simple instruments into LEO or even having them deployed from the ISS.

F) The first CubeSat was created in the early 2000s, as a way of enabling Stanford graduate students to design, build, test and operate a spacecraft with similar capabilities to the *USSR's Sputnik* (前苏联的人造卫星). Since then, NASA, the National Reconnaissance Office and even Boeing have all launched and operated CubeSats. There arc more than 130 currently in operation. The NASA Educational Launch of Nano Satellite program, which offers free launches for educational groups and science missions, is now open to U.S. nonprofit corporations as well. Clearly, satellites are not just for rocket scientists anymore.

G) The National Academy of Sciences report emphasizes CubeSats' importance in scientific discovery and the training of future space scientists and engineers. Yet it also acknowledges that widespread deployment of LEO CubeSats isn't risk-flee. The greatest concern the authors raise is space debris—pieces of"junk"that orbit the earth, with the potential to cause serious damage if they collide with operational units, including the ISS.

H) Currently, there aren't many CubeSats and they're tracked closely. Yet as LEO opens up to more amateur satellites, they may pose an increasing threat. As the report authors point out, even near-misses might lead to the“creation of a burdensome regulatory framework and affect the future disposition of science CubeSats.”

I) CubeSat researchers suggest that now's the time to ponder unexpected and unintended possible consequences of more people than ever having access to their own small slice of space. In an era when you can simply buy a CubeSat kit off the shelf, how can we trust the satellites over our heads were developed with good intentions by people who knew what they were doing? Some“expert amateurs”in the satellite game could provide some inspiration for how to proceed responsibly.

J) In 1969, the Radio Amateur Satellite Corporation (AMSAT) was created in order to foster *ham radio enthusiasts'* (业余无线电爱好者) participation in space research and communication. It continued the efforts, begun in 1961, by Project OSCAR—a U.S.-based group that built and launched the very first nongovernmental satellite just four years after Sputnik. As an organization of volunteers, AMSAT was putting“amateur”satellites in orbit decades before the current CubeSat craze. And over time, its members have learned a thing or two about responsibility. Here, open.source development has been a central principle, Within the organization, AMSAT has a philosophy of open sourcing everything—making technical data on all aspects of their satellites fully available to everyone in the organization, and when possible, the public. According to a member of the team responsible for FOX 1-A, AMSAT's first CubeSat, this means that there s no way to sneak something like explosives or an energy emitter into an amateur satellite when everyone has access to the designs and implementation.

K) However, they're more cautious about sharing information with nonmembers, as the organization guards against others developing the ability to hijack and take control of their satellites. This form of“self-governance”is possible within long-standing amateur organizations that, over time, are able to build a sense of responsibility to community members, as well as society in general. But what happens when new players emerge, who don't have deep roots within the existing culture?

L) Hobbyists and students are gaining access to technologies without being part of a long-standing amateur establishment. They're still constrained by funders, launch providers and a series of regulations—all of which rein in what CubeSat developers can and cannot do. But there's a danger they're ill-equipped to think through potential unintended consequences. What these unintended consequences might be is admittedly far from clear. Yet we know innovators can be remarkably creative with taking technologies in unexpected directions. Think of something as seemingly benign as the cellphone—we have microfinance and text-based social networking at one end of the spectrum, and *improvised* (临时制作的) explosive devices at the other.

M)This is where a culture of social responsibility around CubeSats becomes important—not simply to ensure that physical risks are minimized, but to engage with a much larger community in anticipating and managing less obvious consequences of the technology. This is not an easy task. Yet the evidence from AMSAT and other areas of technology development suggests that responsible amateur communities can and do emerge around novel technologies. The challenge here, of course, is ensuring that what an amateur communities considers to be responsible, actually is. Here's where there needs to be a much wider public conversation that extends beyond government agencies and scientific communities to include students, hobbyists, and anyone who may potentially stand to be affected by the use of CubeSat technology.

36. Given the easier accessibility to space, it is time to think about how to prevent misuse of satellites.
37. A group of mini-satellites can work together to accomplish more complex tasks.
38. The greater accessibility of mini-satellites increases the risks of their irresponsible use.
39. Even school pupils can have their CubeSats put in orbit owing to the lowered launching cost.
40. AMSAT is careful about sharing information with outsiders to prevent hijacking of their satellites.
41. NASA offers to launch CubeSats free of charge for educational and research purposes.
42. Even with constraints, it is possible for some creative developers to take the CubeSat technology in directions that result in harmful outcomes.
43. While making significant contributions to space science, CubeSats may pose hazards to other space vehicles.
44. Mini-satellites enable operators to study Earth from LEO and space around it.
45. AMSAT operates on the principle of having all its technical data accessible to its members, preventing the abuse of amateur satellites.

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TEXT10

Increased Screen Time and Wellbeing Decline in Youth

A) Have young people never had it so good? Or do they face more challenges than any previous generation? Our current era in the West is one of high wealth. This means minors enjoy material benefits and legal protections that would have been the envy of those living in the past. But There is an increasing suspicion that all is not well for our youth. And one of the most popular explanations, among some experts and the popular media, is that excessive "screen time" is to blame. (This refers to all the attention young people devote to their phones, tablets and laptops.) However, this is a contentious theory and such claims have been treated skeptically by some scholars based on their reading of the relevant data.

B) Now a new study has provided another contribution to the debate, uncovering strong evidence that adolescent wellbeing in the United States really is experiencing a decline and arguing that the most likely cause is the electronic riches we have given them. The background to this is that from the 1960s into the early 2000s, measures of average wellbeing went up in the US. This was especially true for younger people. It reflected the fact that these decades saw a climb in general standards of living and avoidance of mass societal traumas like full-scale war or economic deprivation. However, the "screen time" hypothesis, advanced by researchers such as Jean Twenge, is that electronic devices and excessive time spent online may have reversed these trends in recent years, causing problems for young people's psychological health.

C) To investigate, Twenge and her colleagues dived into the "Monitoring the Future" dataset based on annual surveys of American school students from grades 8, 10, and 12 that started in 1991. In total, 1.1 million young people answered various questions related to their wellbeing. Twenge's team's analysis of the answers confirmed the earlier, well-established wellbeing climb, with scores rising across the 1990s, and into the later 2000s. This was found across measures like self-esteem, life satisfaction, happiness and satisfaction with individual domains like job, neighborhood, or friends. But around 2012 these measures started to decline. This continued through 2016, the most recent year for which data is available.

D) Twenge and her colleagues wanted to understand why this change in average wellbeing occurred. However, it is very hard to demonstrate causes using non-experimental data such as this. In fact, when Twenge previously used this data to suggest a screen time effect, some commentators were quick to raise this problem. They argued that her causal-sounding claims rested on correlational data, and that she had not adequately accounted for other potential causal factors. This time around, Twenge and her team make a point of saying that they are not trying to establish causes as such, but that they are assessing the plausibility of potential causes.

E) First, they explain that if a given variable is playing a role in affecting wellbeing, then we should expect any change in that variable to correlate with the observed changes in wellbeing. If not, it is not plausible that the variable is a causal factor. So the researchers looked at time spent in a number of activities that could plausibly be driving the wellbeing decline. Less sport, and fewer meetings with peers correlated with lower wellbeing, as did less time reading print media (newspapers) and, surprisingly, less time doing homework. (This last finding would appear to contradict another popular hypothesis that it is our burdening of students with assignment that is causing all the problems.) In addition, more TV watching and more electronic communication both correlated with lower wellbeing. All these effects held true for measures of happiness, life satisfaction and self-esteem, with the effects stronger in the 8th and 10th-graders

F) Next, Twenge's team dug a little deeper into the data on screen time. They found that adolescents who spent a very small amount of time on digital devices—a couple of hours a week—had the highest wellbeing. Their wellbeing was even higher than those who never used such devices. However, higher doses of screen time were clearly associated with lower happiness. Those spending 10-19 hours per week on their devices were 41 percent more likely to be unhappy than lower-frequency users. Those who used such devices 40 hours a week or more (one in ten teenagers) were twice as likely to be unhappy. The data was slightly complicated by the fact that there was a tendency for kids who were social in the real world to also use more online communication, but by bracketing out different cases it became clear that the real-world sociality component correlated with greater wellbeing, whereas greater time on screens or online only correlated with poorer wellbeing.

G) So far, so plausible. But the next question is, are the drops in average wellbeing happening at the same time as trends toward increased electronic device usage? It looks like it—after all, 2012 was the tipping point when more than half of Americans began owning smartphones. Twenge and her colleagues also found that across the key years of 2013-16, wellbeing was indeed lowest in years where adolescents spent more time online, on social media, and reading news online, and when more youth in the United States had smartphones. And in a second analysis, they found that where technology went, dips in wellbeing followed. For instance, years with a larger increase in online usage were followed by years with lower wellbeing, rather than the other way around. This does not prove causality, but is consistent with it. Meanwhile, TV use did not show this tracking. TV might make you less happy, but this is not what seems to be driving the recent declines in young people's average happiness.

H) A similar but reversed pattern was found for the activities associated with greater wellbeing. For example, years when people spent more time with friends were better years for wellbeing (and followed by better years). Sadly, the data also showed face-to-face socializing and sports activity had declined over the period covered by the survey.

I) There is another explanation that Twenge and her colleagues wanted to address: the impact of the great recession of 2007-2009, which hit a great number of American families and might be affecting adolescents. The dataset they used did not include economic data, so instead the researchers looked at whether the 2013-16 wellbeing decline was tracking economic indicators. They found some evidence that some crude measures, like income inequality, correlated with changes in wellbeing, but economic measures with a more direct impact, like family income and unemployment rates (which put families into difficulties), had no relationship with wellbeing. The researchers also note the recession hit some years before we see the beginning of the wellbeing drop, and before the steepest wellbeing decline, which occurred in 2013.

J) The researchers conclude that electronic communication was the only adolescent activity that increased at the same time psychological wellbeing declined. I suspect that some experts in the field will be keen to address alternative explanations, such as unassessed variables playing a role in the wellbeing decline. But the new work does go further than previous research and suggests that screen time should still be considered a potential barrier to young people's flourishing.

36. The year when most Americans began using smartphones was identified as a turning point in young Americans' level of happiness.

37. Scores in various wellbeing measures began to go downward among young Americans in recent years.

38. Unfortunately, activities involving direct contact with people, which contributed to better wellbeing were found to be on the decline.

39. In response to past critics, Twenge and her co-researchers stress they are not trying to prove that the use of digital devices reduces young people's wellbeing.

40. In the last few decades of the 20th century, living standards went up and economic depressions were largely averted in the US.

41. Contrary to popular belief, doing homework might add to students' wellbeing.

42. The author believes the researchers' new study has gone a step further regarding the impact of screen time on wellbeing.

43. The researchers found that extended screen time makes young people less happy.

44. Data reveals that economic inequality rather than family income might affect people's wellbeing.

45. Too much screen time is widely believed to be the cause of unhappiness among today's young people.

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TEXT11

How Much Protein Do You Really Need?

A) The marketing is tempting: Get stronger muscles and healthier bodies with minimal effort by adding protein powder to your morning shake or juice drink. Or grab a protein bar at lunch or for a quick snack. Today, you can find protein supplements everywhere—online or at the pharmacy, grocery store or health food store. They come in powders, pills and bars. With more than $12 billion in sales this year, the industry is booming and, according to the market research company, Grand View Research, is on track to sell billions more by 2025. But do we really need all this supplemental protein? It depends. There are pros, cons and some other things to consider.

B) For starters, protein is critical for every cell in our body. It helps build nails, hair, bones and muscles. It can also help you feel fuller longer than eating foods without protein. And, unlike nutrients that are found only in few foods, protein is present in all foods. "The typical American diet is a lot higher in protein than a lot of us think," says registered dietitian Angela Pipitone. "It's in foods many of us expect, such as beef, chicken and other types of meat and dairy. But it's also in foods that may not come immediately to mind like vegetables, fruit, beans and grains."

C) The U.S. government's recommended daily allowance (RDA) for the average adult is 50 to 60 gram of protein a day. This may sound like a lot, but Pipitone says: "We get bits of protein here and there and that really adds up throughout the day." Take, for example, breakfast. If you eat two eggs topped with a little bit of cheese and an orange on the side, you already have 22 grams of protein. Each egg gives you 7 grams, the cheese gives you about 6 grams and the orange—about 2 grams. Add a lunch of chicken, rice and *broccoli*(西兰花), and you are already over the recommended 50 grams. "You can get enough protein and meet the RDA before you even get to dinner," says Pipitone.

D) So if it's so easy to get your protein in food, why add more in the form of powders, snack bars or a boost at your local juice bar? No need to, says Pipitone, because, in fact, most of us already get enough protein in our diet. "Whole foods are always the best option rather than adding supplements," the says, noting the FDA does not regulate supplements as rigorously as foods or drugs. So there could be less protein, more sugar and some additives you wouldn't expect, such as *caffeine*(咖啡因).

E) If you are considering a supplement, read the list of ingredients, she says, although this is not always reliable. "I've seen very expensive protein supplements that claim to be high quality but they might not really be beneficial for the average healthy adult," she says. "It could just be a waste of money."

F) But there are certain situations that do warrant extra protein. "Anytime you're repairing or building muscle." Pipitone says, such as if you're an extreme endurance athlete, training for a marathon, or you're a body builder. If you're moderately exercising for 150 minutes a week, as the Centers for Disease Control and Prevention recommends, or less than that, you're probably not an extreme athlete. Extreme athletes expend lots of energy breaking down and repairing and building muscles. Protein can give them the edge they need to speed that process.

G) Vegans can benefit from protein supplements since they do not eat animal-based protein sources like meat, dairy or eggs. And, for someone always on-the-go who may not have time for a meal, a protein snack bar can be a good option for occasional meal replacement. Also, individuals recovering from surgery or an injury can also benefit from extra protein. So, too, can older people. At around age 60, "muscles really start to break down," says Kathryn Starr, an aging researcher, "and because of that, the protein needs of an older adult actually increase."

H) In fact, along with her colleague Connie Bales. Starr recently conducted a small study that found that adding extra protein foods to the diet of obese older individuals who were trying to lose weight strengthened their muscles. Participants in the study were separated into two groups—one group was asked to eat 30 grams of protein per meal in the form of whole foods. That meant they were eating 90 grams of protein a day. The other group—the control group—was put on a typical low-calorie diet with about 50 to 60 grams of protein a day. After six months, researchers found the high protein group had significantly improved their muscle function—almost twice as much as the control group. "They were able to walk faster, had improved balance, and were also able to get up out of a chair faster than the control group." Starr says. All 67 participants were over 60 years of age, and both groups lost about the same amount of weight.

I) Starr is row looking into whether high-protein diets also improve the quality of the muscle itself in seniors. She's using CT scans to measure muscle size and fat, and comparing seniors on a high-protein diet with those on regular diets. She says her findings should be available in a couple of months.

J) In the meantime, 70-year-old Corliss Keith, who was in the high protein group in Starr's latest study, says the feels a big difference. "I feel excellent," she says. "I feel like I have a different body. I have more energy. I'm stronger." She says she is able to take Zumba exercise classes three times a week, work out on the *treadmill*(跑步机), and take long, brisk walks. Keith also lost more than 15 pounds. "I'm a fashionable person, so now I'm back in my 3-inch heels," she says.

K) As people age, Starr says muscle strength is key to helping them stay strong and continue living on their own in their own home. "I feel very much alive now," says Keith. "I feel like I could stay by myself until I'm 100."

L) Bat can people overdo protein? Pipitone says you do have to be careful. Other researchers say too much protein can cause *cramps*(痉挛), headaches, and fatigue. *Dehydration*(脱水)is also a risk when you eat too much protein. Pipitone says if you increase protein, you also have to increase your fluid intake. "I always tell people to make sure they're drinking enough fluids," which for the average person is 60 to 70 ounces a day, which translates into eight 8-ounce glasses of water or liquid per day.

M) There have been some indications that extra protein makes the kidneys work harder, which could be problematic for individuals with a history of kidney disease and for them, the supplements may increase the risk of kidney stones, the says.

N) Bottom line, if you think you need more protein in your diet, consider these questions: Are you an extreme athlete; are you recovering from injury or surgery; or are you 60 years or older? If so, adding high protein foods like eggs and meat products to your diet can be beneficial. And, if you're not sure, in is always a good idea to check with your primary care provider.

36. It is quite easy for one to take in the recommended amount of protein.

37. Pipitone claims that healthy adults need not spend money on protein supplements.

38. The protein supplement business is found to be thriving.

39. Protein can speed the repairing of damaged muscles.

40. Protein supplements may overburden some internal organ, thus leading to its malfunctioning.

41. Older adults need to take in more protein to keep their muscles strong.

42. Protein is found in more foods than people might realize.

43. Additional protein was found to help strengthen the muscles of overweight seniors seeking weight loss.

44. Pipitone believes that whole foods provide the best source of protein.

45. People are advised to drink more liquid when they take in more protein.

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TEXT12

Why More Farmers Are Making The Switch to Grass-Fed Meat and Dairy

A) Though he didn't come from a farming family, from a young age Tim Joseph was fascinated by the idea of living off the land. Reading magazines like *The Stockman Grass Farmer* and *Graze*, he got hooked on the idea of grass-fed agriculture. The idea that all energy and wealth comes from the sun really intrigued him. He thought the shorter the distance between the sun and the end product, the higher the profit to the farmer.

B) Joseph wanted to put this theory to the test. In 2009, he and his wife Laura launched Maple Hill Creamery, an organic, all grass-fed yogurt company in northern New York. He quickly learned what the market has demonstrated: Demand for grass-fed products currently exceeds supply. Grass-fed beef is enjoying a 25-30% annual growth rate. Sales of grass-fed yogurt and *kefir*(发酵乳饮品), on the other hand, have in the last year increased by over 38%. This is in comparison with a drop of just under 1% in the total yogurt and kefir market, according to natural and organic market research company SPINS. Joseph's top priority became getting his hands on enough grass-fed milk to keep customers satisfied, since his own 64-cow herd wasn't going to suffice.

C) His first partnership was with Paul and Phyllis Amburgh, owners of the Dharma Lea farm in New York.The Amburghs, too, were true believers in grass-fed. In addition to supplying milk from their own 85-head herd, they began to help other farmers in the area convert from conventional to certified organic and grass-fed in order to enter the Maple Hill supply chain. Since 2010, the couple has helped 125 small dairy farms convert to grass-fed, with more than 80% of those farms coming on board during the last two years.

D) All this conversion has helped Maple Hill grow 40-50% every year since it began, with no end in sight. Joseph has learned that a farmer has to have a certain mindset to successfully convert. But convincing open-minded dairy people is actually not that hard, when you look at the economics. Grass fed milk can fetch up to 2.5 times the price of conventional milk. Another factor is the squeeze that conventional dairy farmers have felt as the price of grain they feed their cows has gone up, tightening their profit margins. By replacing expensive grain feed with regenerative management practices, grass-fed farmers are insulated from jumps in the price of feed. These practices include grazing animals on grasses grown from the pastureland's natural seed bank, and fertilized by the cows' own fertilizer.

E) Champions of this type of regenerative grazing also point to its animal welfare, climate and health benefits: Grass-fed animals live longer out of confinement. Grazing herds stimulate *microbial*(微生物的)activity in the soil, helping to capture water and separate carbon. And grass-fed dairy and meat have been shown to be higher in certain nutrients and healthy fats.

F) In the grass-fed system, farmers are also not subject to the wildly fluctuating milk prices of the international commodity market. The unpredictability of global demand and the lag-time it takes to add more cows to a herd to meet demand can result in events like the recent cheese surplus. Going grass-fed is a safe refuge, a way for family-scale farms to stay viable. Usually a farmer will get to the point where financially, what they're doing is not working. That's when they call Maple Hill. If the farm is well managed and has enough land, and the desire to convert is sincere, a relationship can begin. Through regular regional educational meetings, a large annual meeting, individual farm visits and thousands of phone calls, the Amburghs pass on the principles of pasture management. Maple Hill signs a contract pledging to buy the farmer's milk at a guaranteed base price, plus quality premiums and incentives for higher protein, butter-fat and other solids.

G) While Maple Hill's conversion program is unusually hands-on and comprehensive, it's just one of a growing number of businesses committed to slowly changing the way America farms. Joseph calls sharing his knowledge network through peer-to-peer learning a core piece of the company's culture. Last summer, Massachusetts grass-fed beef advocate John Smith launched Big Picture Beef, a network of small grass-fed beef farms in New England and New York that is projected to bring to market 2,500 head of cattle from 125 producers this year. Early indications are that Smith will have no shortage of farm members. Since he began to informally announce the network at farming conferences and on social media, he's received a steady stream of inquiries from interested farmers.

H) Smith says he'll provide services ranging from formal seminars to on-farm workshops on *holistic*(整体的)management, to one-on-one hand-holding and an almost 24/7 phone hotline for farmers who are converting. In exchange, he guarantees an above-market price for each animal and a calf-to-customer electronic ear tag ID system like that used in the European Union.

I) Though advocates portray grass fed products as a win-win situation for all, they do have downsides. Price, for one, is an issue. Joseph says his products are priced 10-20%above organic versions, but depending on the product chosen, compared to non-organic conventional yogurt, consumers could pay a premium of 30-50% or more for grass-fed. As for the meat, Smith says his grass-fed hamburger will be priced 20-25% over the conventional alternative. But a look at the prices on online grocer Fresh Direct suggests a grass-fed premium of anywhere from 35-60%.

J) And not every farmer has the option of going grass-fed. For both beef and dairy production, it requires, at least in the beginning, more pastureland. Grass-fed beef production tends to be more labor-intensive as well. But Smith counters that if you factor in the hidden cost of government corn subsidies, environment degradation, and decreased human health and animal welfare, grass-fed is the more cost-effective model. "The sun provides the lowest cost of production and the cheapest meat," he says.

K) Another grass-fed booster spurring farmers to convert is EPIC, which makes meat-based protein bars. Founders Taylor Collins and his wife, Katie Forrest, used to be endurance athletes; now they're advocates of grass-fed meat. Soon after launching EPIC's most successful product—the Bison Bacon Cranberry Bar—Collins and Forrest found they'd exhausted their sources for *bison*(北美野牛)raised exclusively on pasture. When they started researching the supply chain, they learned that only 2-3% of all bison is actually grass-fed. The rest is feed-lot confined and fed grain and corn.

L) But after General Mills bought EPIC in 2016, Collins and Forrest suddenly had the resources they needed to expand their supply chain. So the company teamed up with Wisconsin-based rancher Northstar Bison. EPIC fronted the money for the purchase of $2.5 million worth of young bison that will be raised according to its grass-fed protocols, with a guaranteed purchase price. The message to young people who might not otherwise be able to afford to break into the business is, " 'You car Purchase this $3 million piece of land here, because I'm guaranteeing you today you'll have 1,000 bison on it.' We're bringing new blood into the old, conventional farming ecosystem, which is really cool to see," Collins explains.

36. Farmers going grass-fed are not affected by the ever-changing milk prices of the global market.

37. Over the years, Tim Joseph's partners have helped many dairy farmers to switch to grass-fed.

38. One advocate believes that many other benefits should be taken into consideration when we assess the cost-effectiveness of grass-fed farming.

39. Many dairy farmers were persuaded to switch to grass-fed when they saw its advantage in terms of profits.

40. Tim Joseph's grass-fed program is only one example of how American farming practice is changing.

41. Tim Joseph was fascinated by the notion that sunlight brings energy and wealth to mankind.

42. One problem with grass-fed products is that they are usually more expensive than conventional ones.

43. Grass-fed products have proved to be healthier and more nutritious.

44. When Tim Joseph started his business, he found grass-fed products fell short of demand.

45. A snack bar producer discovered that the supply of purely grass-fed bison meat was scarce.

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TEXT13

Peer Pressure Has a Positive Side

A. Parents of teenagers often view their children‘s friends with something like suspicion. They worry that the adolescent peer group has the power to push its members into behavior that is foolish and even dangerous. Such wariness is well founded: statistics show, for example, that a teenage driver with a same-age passenger in the car is at higher risk of a fatal crash than an adolescent driving alone or with an adult.

B. In a 2005 study, psychologist Laurence Steinberg of Temple University and his co-author, psychologist Margo Gardner, then at Temple, divided 306 people into three age groups: young adolescents, with a mean age of 14; older adolescents, with a mean age of 19; and adults, aged 24 and older. Subjects played a computerized driving game in which the player must avoid crashing into a wall that materializes, without warning, on the roadway. Steinberg and Gardner randomly assigned some participants to play alone or with two same-age peers looking on.

C. Older adolescents scored about 50 percent higher on an index of risky driving when their peers were in the room—and the driving of early adolescents was fully twice as reckless when other young teens were around. In contrast, adults behaved in similar ways regardless of whether they were on their own or observed by others. “The presence of peers makes adolescents and youth, but not adults, more likely to take risks,” Steinberg and Gardner concluded.

D. Yet in the years following the publication of this study, Steinberg began to believe that this interpretation did not capture the whole picture. As he and other researchers examined the question of why teens were more apt to take risks in the company of other teenagers, they came to suspect that a crowd‘s influence need not always be negative. Now some experts are proposing that we should take advantage of the teen brain’s keen sensitivity to the presence of friends and leverage it to improve education.

E. In a 2011 study, Steinberg and his colleagues turned to functional MRI （磁共振） to investigate how the presence of peers affects the activity in the adolescent brain. They scanned the brains of 40 teens and adults who were playing a virtual driving game designed to test whether players would brake at a yellow light or speed on through the crossroad.

F. The brains of teenagers, but not adults, showed greater activity in two regions associated with rewards when they were being observed by same-age peers than when alone. In other words, rewards are more intense for teens when they are with peers, which motivates them to pursue higher-risk experiences that might bring a big payoff （such as the thrill of just making the light before it turns red）. But Steinberg suspected this tendency could also have its advantages. In his latest experiment, published online in August, Steinberg and his colleagues used a computerized version of a card game called the Iowa Gambling Task to investigate how the presence of peers affects the way young people gather and apply information.

G.The results: Teens who played the Iowa Gambling Task under the eyes of fellow adolescents engaged in more exploratory behavior, learned faster from both positive and negative outcomes, and achieved better performance on the task than those who played in solitude. “What our study suggests is that teenagers learn more quickly and more effectively when their peers are present than when they‘re on their own,” Steinberg says. And this finding could have important implications for how we think about educating adolescents.

H. Matthew D. Lieberman, a social cognitive neuroscientist at the University of California, Los Angeles, and author of the 2013 book Social: Why Our Brains Are Wired to Connect， suspects that the human brain is especially adept at learning socially salient information. He points to a classic 2004 study in which psychologists at Dartmouth College and Harvard University used functional MRI to track brain activity in 17 young men as they listened to descriptions of people while concentrating on either socially relevant cues （for example, trying to form an impression of a person based on the description） or more socially neutral information （such as noting the order of details in the description）.The descriptions were the same in each condition, but people could better remember these statements when given a social motivation.

I. The study also found that when subjects thought about and later recalled descriptions in terms of their informational content, regions associated with factual memory, such as the medial temporal lobe, became active. But thinking about or remembering descriptions in terms of their social meaning activated the dorsomedial prefrontal cortex—part of the brain‘s social network—even as traditional memory regions registered low levels of activity. More recently, as he reported in a 2012 review, Lieberman has discovered that this region may be part of a distinct network involved in socially motivated learning and memory. Such findings, he says, suggest that “this network can be called on to process and store the kind of information taught in school—potentially giving students access to a range of untapped mental powers.”

J. If humans are generally geared to recall details about one another, this pattern is probably even more powerful among teenagers who are very attentive to social details: who is in, who is out, who likes whom, who is mad at whom. Their penchant for social drama is not—or not only—a way of distracting themselves from their schoolwork or of driving adults crazy. It is actually a neurological（神经的） sensitivity, initiated by hormonal changes. Evolutionarily speaking, people in this age group are at a stage in which they can prepare to find a mate and start their own family while separating from parents and striking out on their own. To do this successfully, their brain prompts them to think and even obsess about others.

K. Yet our schools focus primarily on students as individual entities. What would happen if educators instead took advantage of the fact that teens are powerfully compelled to think in social terms? In Social, Lieberman lays out a number of ways to do so. History and English could be presented through the lens of the psychological drives of the people involved. One could therefore present Napoleon in terms of his desire to impress or Churchill in terms of his lonely melancholy. Less inherently interpersonal subjects, such as math, could acquire a social aspect through team problem solving and peer tutoring. Research shows that when we absorb information in order to teach it to someone else, we learn it more accurately and deeply, perhaps in part because we are engaging our social cognition.

L. And although anxious parents may not welcome the notion, educators could turn adolescent recklessness to academic ends. “Risk taking in an educational context is a vital skill that enables progress and creativity,” wrote Sarah-Jayne Blakemore, a cognitive neuroscientist at University College London, in a review published last year. Yet, she noted, many young people are especially risk averse at school—afraid that one low test score or mediocre grade could cost them a spot at a selective university. We should assure such students that risk, and even peer pressure, can be a good thing—as long as it happens in the classroom and not the car.

36. It is thought probable that the human brain is particularly good at picking-up socially important information.

37. It can be concluded from experiment that the presence of peers increases risk-taking by adolescents and youth.

38. Students should be told that risk-taking in the classroom can be something positive.

39. The urge of finding a mate and getting married accounts for adolescents' greater attention to social interactions.

40. According to Steinberg, the presence of peers increases the speed and effectiveness of teenagers' leaning.

41. Teenagers' parents are often concerned about negative peer influence.

42. Activating the brain's social network involved in socially motivated learning and memory may allow students to tap unused mental powers.

43. The presence of peer intensifies the feeling of rewards in teens' brains.

44. When we absorb information for the purpose of imparting it to others, we do so with greater secretary and depth.

45. Some experts are suggesting that we turn peer influence to good use in education.

阅读答案：H C L J G A I F K D

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TEXT14

Grow Plants Without Water

[A]. Ever since humanity began to farm our own food, we've faced the unpredictable rain that is both friend and enemy. It comes and goes without much warning, and a field of *lush* (茂盛的) leafy greens one year can dry up and blow away the next. Food security and fortunes depend on sufficient rain, and nowhere more so than in Africa, where 96% of farmland depends on rain instead of the irrigation common in more developed places. It has consequences : South Africa's ongoing drought—the worst in three decades— will cost at least a quarter of its com crop this year.

[B]. Biologist Jill Farrant of the University of Cape Town in South Africa says that nature has plenty of answers for people who want to grow crops in places with unpredictable rainfall. She is hard at work finding a way to take traits from rare wild plants that adapt to extreme dry weather and use them in food crops. As the earth's climate changes and rainfall becomes even less predictable in some places, those answers will grow even more valuable."The type of farming I'm aiming for is literally so that people can survive as it's going to get more and more dry,"Farrant says.

[C]. Extreme conditions produce extremely tough plants. In the rusty red deserts of South Africa, steep- sided rocky hills called inselbergs rear up from the plains like the bones of the earth. The hills are remnants of an earlier geological era, scraped bare of most soil and exposed to the elements. Yet on these and similar formations in deserts around the world, a few fierce plants have adapted to endure under ever-changing conditions.

[D]. Farrant calls them *resurrection plants* (复苏植物) . During months without water under a harsh sun. They wither, shrink and contract until they look like a pile of dead gray leaves. But rainfall can revive them in a matter of hours. Her *time-lapse* (间歇性拍摄的) videos of the revivals look like someone playing a tape of the plant's death in reverse.

[E]. The big difference between "drought-tolerant" plants and these tough plants: metabolism. Many different kinds of plants have developed tactics to weather dry spells. Some plants store reserves of water to see them through a drought ; others send roots deep down to subsurface water supplies. But once these plants use up their stored reserve or tap out the underground supply, they cease growing and start to die. They may be able to handle a drought of some length, and many people use the term "drought tolerant" to describe such plants, but they never actually stop needing to consume water, so Farrant prefers to call them drought resistant.

[F]. Resurrection plants, defined as those capable of recovering from holding less than 0.1 grams of water per gram of dry mass, are different. They lack water-storing structures, and their existence on rock faces prevents them from tapping groundwater, so they have instead developed the ability to change their metabolism .When they detect an extended dry period, they divert their metabolisms, producing sugars and certain stress-associated proteins and other materials in their tissues. As the plant dries, these resources take on first the properties of honey, then rubber, and finally enter a glass-like state that is "the most stable state that the plant can maintain," Farrant says. That slows the plant's metabolism and protects its dried-out tissues. The plants also change shape, shrinking to minimize the surface area through which their remaining water might evaporate. They can recover from months and years without water, depending on the species.

[G]. What else can do this dry-out-and-revive trick? Seeds-almost all of them. At the start of her career, Farrant studied . *recalcitrant seeds* (执拗性种子) ," such as avocados, coffee and lychee. While tasty, such seeds are delicate--they cannot bud and grow if they dry out (as you may know if you've ever tried to grow a tree from an avocado pit). In the seed world, that makes them rare, because most seeds from flowering plants are quite robust. Most seeds can wait out the dry, unwelcoming seasons until conditions are right and they *sprout* (发芽). Yet once they start growing, such plants seem not to retain the ability to hit the pause button on metabolism in their stems or leaves

[H]. After completing her Ph. D. on seeds, Farrant began investigating whether it might be possible to isolate the properties that make most seeds so *resilient* (迅速恢复活力的) and transfer them to other plant tissues. What Farrant and others have found over the past two decades is that there are many

genes involved in resurrection plants' response to dryness. Many of them are the same that regulate how seeds become dryness-tolerant while still attached to their parent plants. Now they are trying to figure out what molecular signaling processes activate those seed-building genes in resurrection plants—and how to reproduce them in crops."Most genes are regulated by a master se of genes,"Farrant says."We're looking at gene promoters and what would be their master switch."

[I]. Once Farrant and her colleagues feel they have a better sense of which switches to throw, they will have to find the best way to do so in useful crops."I'm trying three methods of breeding,"Farrant says : conventional, genetic modification arid gene editing. She says she is aware that plenty of people do not want to eat genetically modified crops, but she is pushing ahead with every available tool until one works. Farmers and consumers alike can choose whether or not to use whichever version prevails :"I'm giving people an option. "

[J]. Farrant and others in the resurrection business got together last year to discuss the best species of resurrection plant to use as a lab model. Just like medical researchers use rats to test ideas for human medical treatments, botanists use plants that are relatively easy to grow in a lab or greenhouse setting to test their ideas for related species. The Queensland rock violet is one of the best studied resurrection plants so far, with a draft *genome* (基因图谱) published last year by a Chinese team. Also last year, Farrant and colleagues published a detailed molecular study of another candidate, Xerophyta viscosa, a tough-as-nail south African plant with lily-like flowers, and she says that a genome is on the way. one or both of these models will help researchers test their ideas — so far mostly done in the lab— on test plots.

[K]. Understanding the basic science first is key. There are good reasons why crop plants do not use dryness defenses already. For instance, there's a high energy cost in switching from a regular metabolism to an almost-no-water metabolism. It will also be necessary to understand what sort of yield farmers might expect and to establish the plant's safety."The yield is never going to be high,"Farrant says, so these plants will be targeted not at Iowa farmers trying to squeeze more cash out of high-yield fields, but subsistence farmers who need help to survive a drought like the present one in South Africa."My vision is for the subsistence farmer," Farrant says."I'm targeting crops that are of African value. ".

36. There are a couple of plants tough and adaptable enough to survive on bare rocky hills and in deserts.
37. Farrant is trying to isolate genes in resurrection plants and reproduce them in crops.
38. Farmers in South Africa are more at the mercy of nature, especially inconsistent rainfall.
39. Resurrection crops are most likely to be the choice of subsistence farmers.
40. Even though many plants have developed various tactics to cope with dry weather, they cannot survive a prolonged drought.
41. Despite consumer resistance, researchers are pushing ahead with genetic modification of crops.
42. Most seeds can pull through dry spells and begin growing when conditions are ripe, but once this process starts, it cannot be held back.
43. Farrant is working hard to cultivate food crops that call survive extreme dryness by studying the traits of rare wild plants.
44. By adjusting their metabolism, resurrection plants can recover from an extended period of drought.
45. Resurrection plants can come back to life in a short time after a rainfall.

阅读答案：C H A K E I G B F D

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TEXT15

In the real world, nobody cares that you went to an Ivy League school

[A]. As a high school junior, everything in my life revolved around getting into the right college. I diligently attended my SAT, ACT, and Advanced Placement test preparation courses. I juggled （尽力应付）cross- country and track schedules, newspaper staff, and my church's youth group and drama team. I didn't drink,party, or even do much dating. The right college, I thought, was one with prestige, one with a name. It didn't have to be the Ivy League, but it needed to be "top school."

[B]. Looking back now, nine years later, I can't remember exactly what it was about these universities that made them seem so much better. Was it a curriculum that appeared more rigorous, perhaps？ Or an alumni network that I hoped would open doors down the line？ Maybe. "I do think there are advantages to schools with more recognition," notes Marybeth Gasman, a professor of higher education at the University of Pennsylvania. "I don't necessarily think that's a reason to go to one."

[C]. In reflection, my firm belief in the power of the brand was naive, not to mention a bit snobby. I quickly passed over state schools and southern schools, believing their curriculum to be automatically inferior to northeastern or western counterparts. Instead, I dreamed of living in New York City and my parents obliged me with a visit to New York University's （ NYU ） campus. During the tour, tuition fees were discussed. （ NYU is consistently ranked one of the country's most expensive schools, with room and board costs totaling upwards of $64,000 a year.） Up until then, I hadn't truly realized just how expensive an education can be. Over the next few months, I realized not only could I not afford my dream school, I couldn't even afford the ones where I'd been accepted. City University of New York （ CUNY ）, Rutgers University, and Indiana University were out of reach as were Mississippi State and the University of Alabama, where I would have to pay out-of-state fees. Further complicating my college search was a flourishing stack career—I wanted to keep running but my times weren't quite fast enough to secure a scholarship.

[D]. And so, at 11pm on the night of Georgia State University's （GSU） midnight deadline, I applied online. Rated No.466 overall on Forbes' Lists Top Colleges, No. 183 in Research Universities, and No. 108 in the South, I can't say it was my top choice. Still, the track coach had offered me a walk-on spot, and I actually found the urban Atlanta campus a decent consolation prize after New York City.

[E]. While it may have been practical, it wasn't prestigious, But here's the thing： I loved my "lower-tier" （低层 次的） university. （I use the term "low-tier" cautiously, because GSU is a well-regarded research institution that attracts high quality professors and faculty from all over the country.） We are taught to believe that only by going to the best schools and getting the best grades can we escape the rat race and build a better future. But what if lower-tier colleges and universities were the ticket to escaping the rat race？ After all, where else can you leave school with a decent degree—but without a lifetime of debt？

[F] My school didn't come pre-packaged like the more popular options, so we were left to take care of ourselves, figuring out city life and trying to complete degree programs that no one was championing for us to succeed in. What I'm saying is, Iloved my university because it taught us all to be resourceful and we could make what we wanted out of it.

[G].I was lucky enough to have my tuition covered by a lottery-funded scholarship called HOPE （Helping Outstanding Pupils Educationally） When I started college, the HOPE scholarship was funded by the state of Georgia and offered to graduating high school seniors with a GPA of 3.0 or higher. Living costs and books I paid for with money earned during high school, supplemented by a small college fund my deceased grandfather left for me and a modest savings account my parents created when I was born.

[H]. So what about all that name recognition？ Sure, many of my colleagues and competitors have more glamorous alma maters（母校）than I do. As a journalist, I have competed against NYU, Columbia, and Northeastern graduates for jobs. And yet, not a single interviewer has ever asked me about my educational background. In fact, almost every interview I've ever had was due to a connection—one that I've gained through pure determination, not a school brand.

[I]. According to The Boston Globe, students who earned their bachelor's in 2012 have an average monthly loan payment of $312, which is one-third more than those who graduated in 2004. Ultimately, that's the thing universities don't want to admit. Private universities are money-making institutions. If you can afford to buy prestige, that's your choice. For the rest of us, however, our hearty lower-tiered universities are just fine, thank you.

[J]. Wealthy universities talk up the benefits their name will give graduates namely, strong alumni networks, star faculty, and a résumé boost. But you needn't attend an Ivy League school to reap those rewards. Ludacris and the former CEO of Bank of America Ken Lewis are alumni of my college, as well as VICE's first female editor-in-chief, Ellis Jones. Successful people tend to be successful no matter where they go to school. And lower-tier schools can have alumni networks just as strong as their big name counterparts. In fact, lower-tier school alumni networks are arguably stronger, because fellow alumni recognize that you didn't necessarily have an easy path

to follow. They might be more willing to offer career help, because your less famous school denotes that, like them., you are also full of energy and perseverance.

[K]. The Washington Post reported on a recent study by Princeton economists, in which college graduates, who applied to the most selective schools in the 12th grade were compared to those who applied to slightly less selective schools. They found that students with more potential earned more as adults, and the reverse held true as well, no matter where they went to school.

[L]. Likewise, star faculty is not always found where you'd expect. Big name schools are not necessarily the best places for professors； plus, many professors split teaching time between multiple colleges and/or universities. This means, for instance, a CUNY student could reasonably expect to receive the same quality of instruction from a prestigious professor as they would if they were enrolled in the same class at NYU.

[M]. It's possible that some hiring managers may be drawn to candidates with a particular educational résumé, but it's no guarantee. According to a 2012 survey described in The Atlantic, college reputation ranked lowest in relative importance of attributes in evaluating graduates for hire, beaten out by top factors like internships, employment during college, college major, volunteer experience, and extracurriculars.

[N]. Maybe students who choose less prestigious universities are bound to succeed because they are determined to. I tend to think so. In any case, if I could do it again, I'd still make the same choice. Today I'm debt-free, resourceful—and I understand that even the shiniest packaging can't predict what you'll find on the inside.

36.Modest institutions can also have successful graduates and strong alumni networks.

37.The money the author made in high school helped pay for her living expenses and books at college.

38.The author came to see how costly college education could be when she was trying to choose a university to attend.

39.A recent study found that a graduate's salary is determined by their potential, not the university they attended.

40.The author cannot recall for sure what made certain top universities appear a lot better.

41.None of the author's job interviewers cared which college she went to.

42.The author thinks she did the right thing in choosing a less prestigious university.

43.In order to be admitted to a prestigious university, the author took part in various extracurricular activities and attended test preparation courses.

44.The author liked her university which was not prestigious but less expensive.

45.Colleges are reluctant to admit that graduates today are in heavier debt.

阅读答案：J G C K B H N A E I

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TEXT16

Do Parents Invade Children's Privacy When They Post Photos Online?

[A] When Katlyn Burbidge's son was 6 years old, he was performing some ridiculous song and dance typical of a first-grader. But after she snapped a photo and started using her phone, he asked her a serious question:"Are you going to post that online?" She laughed and answered, "Yes, I think I will." What he said next stopped her. "Can you not?"

[B] That's when it dawned on her: She had been posting photos of him online without asking his permission. "We're big advocates of bodily autonomy and not forcing him to hug or kiss people unless he wants to, but it never occurred to me that I should ask his permission to post photos of him online," says Burbidge, a mom of two in Wakefield, Massachusetts. "Now when I post a photo of him online, I show him the photo and get his okay."

[C] When her 8-month-old is 3 or 4 years old, she plans to start asking him in an age-appropriate way, "Do you want other people to see this?" That's precisely the approach that two researchers advocated before a room of pediatricians (儿科医生) last week at the American Academy of Pediatrics meeting, when they discussed the 21st century challenge of "sharenting," a new term for parents' online sharing about their children. "As advocates of children's rights, we believe that children should have a voice about what information is shared about them if possible," says Stacey Steinberg, a legal skills professor at the University of Florida Levin College of Law in Gainesville.

[D] Whether it's ensuring that your child isn't bullied over something you post, that their identity isn't digitally "kidnapped", or that their photos don't end up on a half dozen child pornography (色情) sites, as one Australian mom discovered, parents and pediatricians are increasingly aware of the importance of protecting children's digital presence. Steinberg and Bahareh Keith, an assistant professor of pediatrics at the University of Florida College of Medicine, say most children will likely never experience problems related to what their parents share, but a tension still exists between parents' rights to share their experiences and their children's rights to privacy.

[E] "We're in no way trying to silence parents' voices," Steinberg says. "At the same time, we recognize that children might have an interest in entering adulthood free to create their own digital footprint." They cited a study presented earlier this year of 249 pairs of parents and their children in which twice as many children as parents wanted rules on what parents could share. "The parents said, 'We don't need rules—we're fine,' and the children said, 'Our parents need rules,'" Keith says. "The children wanted autonomy about this issue and were worried about their parents sharing information about them."

[F] Although the American Academy of Pediatrics offers guidelines recommending that parents model appropriate social media use for their children, it does not explicitly discuss oversharing by parents. “I think this is a very legitimate concern, and I appreciate their drawing our attention to it,” David Hill, a father of five, says. He sees a role for pediatricians to talk with parents about this, but believes the messaging must extend far beyond pediatricians’ offices. “I look forward to seeing researchers expand our understanding of the issue so we can translate it into effective education and policy,” he says.

[G] There’s been little research on the topic, Steinberg wrote in a law article about this issue. While states could pass laws related to sharing information about children online, Steinberg feels parents themselves are generally best suited to make these decisions for their families. “While we didn’t want to create any unnecessary panic, we did find some concerns that were troublesome, and we thought that parents or at least physicians should be aware of those potential risks,” Steinberg says. They include photos repurposed for inappropriate or illegal means, identity theft, embarrassment, bullying by peers or digital kidnapping.

[H] But that’s the negative side, with risks that must be balanced against the benefits of sharing. Steinberg pointed out that parental sharing on social media helps build communities, connect spread-out families, provide support and raise awareness around important social issues for which parents might be their children’s only voice.

[I] A C.S. Mott survey found among the 56 percent of mothers and 34 percent of fathers who discussed parenting on social media, 72 percent of them said sharing made them feel less alone, and nearly as many said sharing helped them worry less and gave them advice from other parents. The most common topics they discussed included kids’ sleep, nutrition, discipline, behavior problems and day care and preschool.

[J] “There’s this peer-to-peer nature of health care these days with a profound opportunity for parents to learn helpful tips, safety and prevention efforts, pro-vaccine messages and all kinds of other messages from other parents in their social communities,” says Wendy Sue Swanson, a pediatrician and executive director of digital health at Seattle Children’s Hospital, where she blogs about her own parenting journey to help other parents. “They’re getting nurtured by people they’ve already selected that they trust,” she says.

[K] “How do we weigh the risks, how do we think about the benefits, and how do we alleviate the risks?” she says. “Those are the questions we need to ask ourselves, and everyone can have a different answer.”

[L] Some parents find the best route for them is not to share at all. Bridget O'Hanlon and her husband, who live in Cleveland, decided before their daughter was born that they would not post her photos online. When a few family members did post pictures, O'Hanlon and her husband made their wishes clear. "It's been hard not to share pictures of her because people always want to know how babies and toddlers (学走路的孩子) are doing and to see pictures, but we made the decision to have social media while she did not," O'Hanlon said. Similarly, Alison Jamison of New York decided with her husband that their child had a right to their own online identity. They did use an invitation-only photo sharing platform so that friends and family, including those far away, could see the photos, but they stood firm, simply refusing to put their child's photos on other social media platforms.

[M] "For most families, it's a journey. Sometimes it goes wrong, but most of the time it doesn't," says Swanson, who recommends starting to ask children permission to post narratives or photos around ages 6 to 8. "We'll learn more and more what our tolerance is. We can ask our kids to help us learn as a society what's okay and what's not."

[N] Indeed, that learning process goes both ways. Bria Dunham, a mother in Somerville, Massachusetts, was so excited to watch a moment of brotherly bonding while her first-grader and baby took a bath together that she snapped a few photos. But when she considered posting them online, she took the perspective of her son: How would he feel if his classmates' parents saw photos of him chest-up in the bathtub? "It made me think about how I'm teaching him to have ownership of his own body and how what is shared today endures into the future," Dunham says. "So I kept the pictures to myself and accepted this as one more step in supporting his increasing autonomy."

36. Steinberg argued parental sharing online can be beneficial.

37. According to an expert, when children reach school age, they can help their parents learn what can and cannot be done.

38. One mother refrained from posting her son's photos online when she considered the matter from her son's perspective.

39. According to a study, more children than parents think there should be rules on parents' sharing.

40. Katlyn Burbidge had never realized she had to ask her son's approval to put his photos online.

41. A mother decided not to post her son's photo online when he asked her not to.

42. A woman pediatrician tries to help other parents by sharing her own parenting experience.

43. There are people who decide simply not to share their children's photos online.

44. Parents and physicians should realize sharing information online about children may involve risks.

45. Parents who share their parenting experiences may find themselves intruding into their children's privacy.

阅读答案：B M N E B A J L G D

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TEXT17

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 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.

阅读答案：K I E M G O C L F D

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TEXT18

Resilience Is About How You Recharge, Not How You Endure

[A] As constant travelers and parents of a 2-year-old, we sometimes fantasize about how much work we can do when one of us gets on a plane, undistracted by phones, friends, or movies. We race to get all our ground work done: packing, going through security, doing a last-minute work call, calling each other, then boarding the plane. Then, when we try to have that amazing work session in flight, we get nothing done. Even worse, after refreshing our email or reading the same studies over and over, we are too exhausted when we land to soldier on with（继续处理）the emails that have inevitably still piled up.

[B] Why should flying deplete us? We're just sitting there doing nothing. Why can't we be tougher, more resilient（有复原力的）and determined in our work so we can accomplish all of the goals we set for ourselves? Based on our current research, we have come to realize that the problem is not our hectic schedule or the plane travel itself; the problem comes from a misconception of what it means to be resilient, and the resulting impact of overworking.

[C] We often take a militaristic, "tough" approach to resilience and determination like a Marine pulling himself through the mud, a boxer going one more round, or a football player picking himself up off the ground for one more play. We believe that the longer we tough it out, the tougher we are, and therefore the more successful we will be. However, this entire conception is scientifically inaccurate.

[D] The very lack of a recovery period is dramatically holding back our collective ability to be resilient and successful. Research has found that there is a direct correlation between lack of recovery and increased incidence of health and safety problems. And lack of recovery—whether by disrupting sleep with thoughts of work or having continuous cognitive arousal by watching our phones—is costing our companies $62 billion a year in lost productivity.

[E] And just because work stops, it doesn't mean we are recovering. We "stop" work sometimes at 5 pm, but then we spend the night wrestling with solutions to work problems, talking about our work over dinner, and falling asleep thinking about how much work we'll do tomorrow. In a study just released, researchers from Norway found that 7.8% of Norwegians have become workaholics（工作狂）. The scientists cite a definition of "workaholism" as "being overly concerned about work, driven by an uncontrollable work motivation, and investing so much time and effort in work that it impairs other important life areas."

[F] We believe that the number of people who fit that definition includes the majority of American workers, which prompted us to begin a study of workaholism in the U.S.. Our study will use a large corporate dataset from a major medical company to examine how technology extends our working hours and thus interferes with necessary cognitive recovery, resulting in huge health care costs and turnover costs for employers.

[G] The misconception of resilience is often bred from an early age. Parents trying to teach their children resilience might celebrate a high school student staying up until 3 am to finish a science fair project. What a distortion of resilience! A resilient child is a well-rested one. When an exhausted student goes to school, he risks hurting everyone on the road with his impaired driving; he doesn't have the cognitive resources to do well on his English test; he has lower self-control with his friends; and at home, he is moody with his parents. Overwork and exhaustion are the opposite of resilience and the bad habits we acquire when we're young only magnify when we hit the workforce.

[H] As Jim Loehr and Tony Schwartz have written, if you have too much time in the performance zone, you need more time in the recovery zone, otherwise you risk burnout. Gathering your resources to "try hard" requires burning energy in order to overcome your currently low arousal level. It also worsens exhaustion. Thus the more imbalanced we become due to overworking, the more value there is in activities that allow us to return to a state of balance. The value of a recovery period rises in proportion to the amount of work required of us.

[I] So how do we recover and build resilience? Most people assume that if you stop doing a task like answering emails or writing a paper, your brain will naturally recover, so that when you start again later in the day or the next morning, you'll have your energy back. But surely everyone reading this has had times when you lie in bed for hours, unable to fall asleep because your brain is thinking about work. If you lie in bed for eight hours, you may have rested, but you can still feel exhausted the next day. That's because rest and recovery are not the same thing.

[J] If you're trying to build resilience at work, you need adequate internal and external recovery periods. As researchers Zijlstra, Cropley and Rydstedt write in their 2014 paper: "Internal recovery refers to the shorter periods of relaxation that take place within the frames of the work day or the work setting in the form of short scheduled or unscheduled breaks, by shifting attention or changing to other work tasks when the mental or physical resources required for the initial task are temporarily depleted or exhausted. External recovery refers to actions that take place outside of work—e.g. in the free time between the work days, and during weekends, holidays or vacations." If after work you lie around on your bed and get irritated by political commentary on your phone or get stressed thinking about decisions about how to renovate your home, your brain has not received a break from high mental arousal states. Our brains need a rest as much as our bodies do.

[K] If you really want to build resilience, you can start by strategically stopping. Give yourself the resources to be tough by creating internal and external recovery periods. Amy Blankson describes how to strategically stop during the day by using technology to control overworking. She suggests downloading the Instant or Moment apps to see how many times you turn on your phone each day. You can also use apps like Offtime or Unplugged to create tech free zones by strategically scheduling automatic airplane modes. The average person turns on their phone 150 times every day. If every distraction took only 1 minute, that would account for 2.5 hours a day.

[L]In addition, you can take a cognitive break every 90 minutes to charge your batteries. Try to not have lunch at your desk, but instead spend time outside or with your friends—not talking about work. Take all of your paid time off, which not only gives you recovery periods, but raises your productivity and likelihood of promotion.

[M] As for us, we've started using our plane time as a work-free zone, and thus time to dip into the recovery phase. The results have been fantastic. We are usually tired already by the time we get on a plane, and the crowded space and unstable internet connection make work more challenging. Now, instead of swimming upstream, we relax, sleep, watch movies, or listen to music. And when we get off the plane, instead of being depleted, we feel recovered and ready to return to the performance zone.

36. It has been found that inadequate recovery often leads to poor health and accidents.

37. Mental relaxation is much needed, just as physical relaxation is.

38. Adequate rest not only helps one recover, but also increases one's work efficiency.

39. The author always has a hectic time before taking a flight.

40. Recovery may not take place even if one seems to have stopped working.

41. It is advised that technology be used to prevent people from overworking.

42. Contrary to popular belief, rest does not equal recovery.

43. The author has come to see that his problem results from a misunderstanding of the meaning of resilience.

44. People's distorted view about resilience may have developed from their upbringing.

45. People tend to think the more determined they are, the greater their success will be.

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TEXT19

The Price of Oil and the Price of Carbon

A) Fossil fuel prices are likely to stay "low for long". Notwithstanding important recent progress in developing renewable fuel sources, low fossil fuel prices could discourage further innovation in, and adoption of, cleaner energy technologies. The result would be higher emissions of carbon dioxide and other greenhouse gases.

B) Policymakers should not allow low energy prices to derail the clean energy transition. Action to restore appropriate price incentives, notably through corrective carbon pricing, is urgently needed to lower the risk of irreversible and potentially devastating effects of climate change. That approach also offers fiscal benefits.

C) Oil prices have dropped by over 60% since June 2014. A commonly held view in the oil industry is that "the best cure for low oil prices is low oil prices". The reasoning behind this saying is that low oil prices discourage investment in new production capacity, eventually shifting the oil supply curve backward and bringing prices back up as existing oil fields—which can be tapped at relatively low marginal cost—are depleted. In fact, in line with past experience, c apital expenditure in the oil sector has dropped sharply in many producing countries, including the United States. The dynamic adjustment to low oil prices may, however, be different this time around.

D) Oil prices are expected to remain lower for longer. The advent of new technologies has added about 4.2 million barrels per day to the crude oil market, contributing to a global over-supply. In a ddition, other factors are putting downward pressure on oil prices: change in the strategic behavior of the Organization of Petroleum Exporting Countries, the projected increase in Iranian exports, the scaling-down of global demand (especially from emerging markets), the long-term drop in petroleum consumption in the United States, and some displacement of oil by substitutes. These likely persistent forces, like the growth of shale (页岩) oil, point to a "low for long" scenario. Futures markets, which show only a modest recovery of prices to around $60 a barrel by 2019, support this view.

E) Natural gas and coal—also fossil fuels—have similarly seen price declines that look to be long-lived. Coal and natural gas are mainly used for electricity generation, whereas oil is used mostly to power transportation, yet the prices of all these energy sources are linked. The North American shale gas boom has resulted in record low prices there. The recent discovery of the giant Zohr gas field off the Egyptian coast will eventually have impact on pricing in the Mediterranean region and Europe, and there is significant development potential in many other places, notably Argentina. Coal prices also are low, owing to over-supply and the scaling-down of demand, especially from China, which bums half of the world's coal.

F) Technological innovations have unleashed the power of renewables such as wind, hydro, sola r, and geothermal (地热). Even Africa and the Middle East, home to economies that areheavily de pendent on fossil fuel exports, have enormous potential to develop renewables. For example, th e United Arab Emirates has endorsed an ambitious target to draw 24% of its primary energy cons umption from renewable sources by 2021.

G) Progress in the development of renewables could be fragile, however, if fossil fuel prices remain low for long. Renewables account for only a small share of global primary energy consumption, which is still dominated by fossil fuels—30% each for coal and oil, 25% for natural gas. But renewable energy will have to displace fossil fuels to a much greater extent in the future to avoid unacceptable climate risks.

H) Unfortunately, the current low prices for oil, gas, and coal may provide little incentive for research to find even cheaper substitutes for those fuels. There is strong evidence that both innovation and adoption of cleaner technology are strongly encouraged by higher fossil fuel prices. The same is true for new technologies for alleviating fossil fuel emissions.

I) The current low fossil fuel price environment will thus certainly delay the energy transition from fossil fuel to clean energy sources. Unless renewables become cheap enough that substantial carbon deposits are left underground for a very long time, if not forever, the planet will likely be exposed to potentially catastrophic climate risks.

J) Some climate impacts may already be discernible. For example, the United Nations Children's Fund estimates that some 11 million children in Africa face hunger, disease, and water shortage s as a result of the strongest ElNino (厄尔尼诺) weather phenomenon in decades. Many scientist s believe that El Nino events, caused by warming in the Pacific, are becoming more intense as a r esult of climate change.

K) Nations from around the world have gathered in Paris for the United Nations Climate Change Conference, COP 21, with the goal of a universal and potentially legally-binding agreement on r educing greenhouse gas emissions. We need very broad participation to fully address the global t ragedy that results when countries fail to take into account the negative impact oftheir carbon em issions on the rest of the world. Moreover, non-participation by nations, if sufficiently widesprea d, can undermine the political will of participating countries to act.

K) The nations participating at COP 21 are focusing on quantitative emissions-reduction commitments. Economic reasoning shows that the least expensive way for each country is to put a price on carbon emissions. The reason is that when carbon is priced, those emissions reductions that are least costly to implement will happen first. The International Monetary Fund calculates that countries can generate substantial fiscal revenues by eliminating fossil fuel subsidies and levying carbon charges that capture the domestic damage caused by emissions. A tax on upstream carbon sources is one easy way to put a price on carbon emissions, although some countries may wish to use other methods, such as emissions trading schemes. In order to maximize global welfare, every country's carbon pricing should reflect not only the purely domestic damage from emissions, but also the damage to foreign countries.

M) Setting the right carbon price will therefore efficiently align the costs paid by carbon users with the true social opportunity cost of using carbon. By raising relative demand for clean energy sources, a carbon price would also help align the market return to clean-energy innovation with its social return, spurring the refinement of existing technologies and the development of new ones. And it would raise the demand for technologies such as carbon capture and storage, spurring their further development. If not corrected by the appropriate carbon price, low fossil fuel prices are not accurately signaling to markets the true social profitability of clean energy. While alternative estimates of the damage from carbon emissions differ, and it's especially hard to reckon the likely costs of possible catastrophic climate events, most estimates suggest substantial negative effects.

N) Direct subsidies to research and development have been adopted by some governments but are a poor substitute for a carbon price: they do only part of the job, leaving in place market incentives to over-use fossil fuels and thereby add to the stock of atmospheric greenhouse gases without regard to the collateral (附带的) costs.

O) The hope is that the success of COP 21 opens the door to future international agreement on carbon prices. Agreement on an international carbon-price floor would be a good starting point in that process. Failure to address comprehensively the problem of greenhouse gas emissions, however, exposes all generations, present and future, to incalculable risks.

36. A number of factors are driving down the global oil prices not just for now but in the foreseeable future.

37. Pricing carbon proves the most economical way to reduce greenhouse gas emissions.

38. It is estimated that extreme weather conditions have endangered the lives of millions of African children.

39. The prices of coal are low as a result of over-supply and decreasing demand.

40. Higher fossil fuel prices prove to be conducive to innovation and application of cleaner technology.

41. If fossil fuel prices remain low for a long time, it may lead to higher emissions of greenhouse gases.

42. Fossil fuels remain the major source of primary energy consumption in today's world.

43. Even major fossil exporting countries have great potential to develop renewable energies.

44. Greenhouse gas emissions, if not properly dealt with, will pose endless risks for mankind.

45. It is urgent for governments to increase the cost of using fossil fuels to an appropriate level to lessen the catastrophic effects of climate change.

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TEXT20

Elite Math Competitions Struggle to Diversify Their Talent Pool

[A] Interest in elite high school math competitions has grown in recent years, and in light of last summer's U.S. win at the International Math Olympiad (IMO)---the first for an American team in more than two decades—the trend is likely to continue.

[B] But will such contests, which are overwhelmingly dominated by Asian and white students from middle-class and affluent families, become any more diverse? Many social and cultural factors play roles in determining which promising students get on the path toward international math recognition. But efforts are in place to expose more black, Hispanic, and low-income students to advanced math, in the hope that the demographic pool of high-level contenders will eventually begin to shift and become less exclusive.

[C] "The challenge is if certain types of people are doing something, it's difficult for other people to break into it," said Po-Shen Loh, the head coach of last year's winning U.S. Math Olympiad team. Participation grows through friends and networks and if "you realize that's how they're growing, you can start to take action" and bring in other students, he said.

[D] Most of the training for advanced-math competitions happens outside the confines of the normal school day. Students attend after-school clubs, summer camps, online forums and classes, and university-based "math circles", to prepare for the competitions.

[E] One of the largest feeders for high school math competitions—including those that eventually lead to the IMO—is a middle school program called Math Counts. About 100,000 students around the country participate in the program's competition series, which culminates in a national game-show-style contest held each May. The most recent one took place last week in Washington, D.C. Students join a team through their schools, which provide a volunteer coach and pay a nominal fee to send students to regional and state competitions. The 224 students who make it to the national competition get an all-expenses- paid trip.

[F] Nearly all members of last year's winning U.S. IMO team took part in Math Counts as middle school students, as did Loh, the coach. "Middle school is an important age because students have enough math capability to solve advanced problems, but they haven't really decided what they want to do with their lives," said Loh. "They often get hooked then."

[G] Another influential feeder for advanced-math students is an online school called Art of Problem Solving, which began about 13 years ago and now has 15,000 users. Students use forums to chat, play games, and solve problems together at no cost, or they can pay a few hundred dollars to take courses with trained teachers. According to Richard Rusczyk, the company founder, the six U.S. team members who competed at the IMO last year collectively took more than 40 courses on the site. Parents of advanced- math students and Math Counts coaches say the children are on the website constantly.

[H] There are also dozens of summer camps—many attached to universities—that aim to prepare elite math students. Some are pricey---a three-week intensive program can cost $4,500 or more—but most offer scholarships. The Math Olympiad Summer Training Program is a three-week math camp held by the Mathematical Association of America that leads straight to the international championship and is free for those who make it. Only about 50 students are invited based on their performance on written tests and at the USA Math Olympiad.

[I] Students in university towns may also have access to another lever for involvement in accelerated math: math circles. In these groups, which came out of an Eastern European tradition of developing young talent, professors teach promising K-12 students advanced mathematics for several hours after school or on weekends. The Los Angeles Math Circle, held at the University of California, Los Angeles, began in 2007 with 20 students and now has more than 250. “These math circles cost nothing, or they’re very cheap for students to get involved in, but you have to know about them,” said Rusczyk. “Most people would love to get students from more underserved populations, but they just can’t get them in the door. Part of it is communication; part of it is transportation.”

[J] It’s no secret in the advanced-math community that diversity is a problem. According to Mark Saul, the director of competitions for the Mathematical Association of America, not a single African-American or Hispanic student---and only a handful of girls---has ever made it to the Math Olympiad team in its 50 years of existence. Many schools simply don’t prioritize academic competitions. “Do you know who we have to beat?” asked Saul. “The football team, the basketball team---that’s our competition for resources, student time, attention, school dollars, parent efforts, school enthusiasm.”

[K] Teachers in low-income urban and rural areas with no history of participating in math competitions may not know about advanced-math opportunities like Math Counts—and those who do may not have support or feel trained to lead them.

[L] But there are initiatives in place to try to get more underrepresented students involved in accelerated math. A New York City-based nonprofit called Bridge to Enter Mathematics runs a residential summer program aimed at getting underserved students， mostly black and Hispanic, working toward math and science careers. The summer after 7th grade, students spend three weeks on a college campus studying advanced math for seven hours a day. Over the next five years, the group helps the students get into other elite summer math programs, high-performing high schools,

and eventually college. About 250 students so far have gone through the program, which receives funding from the Jack Kent Cooke Foundation.

[M] “If you look at a lot of low-income communities in the United States, there are programs that are serving them, but they’ re primarily centered around ‘Let’s get these kids’ grades up’, and not around ‘Let’s get these kids access to the same kinds of opportunities as more-affluent kids,’” said Daniel Zaharopol, the founder and executive director of the program. “We’re trying to create that pathway.” Students apply to the program directly through their schools. “We want to reach parents who are not plugged into the system,” said Zaharopol.

[N] In the past few years, Math Counts added two new middle school programs to try to diversify its participant pool---the National Math Club and the Math Video Challenge. Schools or teachers who sign up for the National Math Club receive a kit full of activities and resources, but there’s no special teacher training and no competition attached.

[O] The Math Video Challenge is a competition, but a collaborative one. Teams of four students make a video illustrating a math problem and its real-world application. After the high-pressure Countdown round at this year’s national Math Counts competition, in which the top 12 students went head to head solving complex problems in rapid fire, the finalists for the Math Video Challenge took the stage to show their videos. The demographics of that group looked quite different from those in the competition round---of the 16 video finalists, 13 were girls and eight were African-American students. The video challenge does not put individual students on the hot seat---so it’s less intimidating by design. It also adds the element of artistic creativity to attract a new pool of students who may not see themselves as “math people”.

36. Middle school is a crucial period when students may become keenly interested in advanced mathematics.

37. Elite high school math competitions are attracting more interest throughout the UnitedStates.

38. Math circles provide students with access to advanced-math training by universityprofessors.

39. Students may take advantage of online resources to learn to solve math problems.

40. The summer program run by a nonprofit organization has helped many underservedstudents le arn advanced math.

41. Winners of local contests will participate in the national math competition for free.

42. Many schools don't place academic competitions at the top of their priority list.

43. Contestants of elite high school math competitions are mostly Asian and white studentsfrom w ell-off families.

44. Some math training programs primarily focus on raising students' math scores.

45. Some intensive summer programs are very expensive but most of them provideschol arships.

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TEXT21

Rich Children and Poor Ones Are Raised Very Differently

A) The lives of children from rich and poor American families look more different than ever before.

B) Well-off families are ruled by calendars, with children enrolled in ballet, soccer and after-school programs, according to a new Pew Research Center survey. There are usually two parents, who spend a lot of time reading to children and worrying about their anxiety levels and hectic schedules.

C)In poor families, meanwhile, children tend to spend their time at home or with extended family. They are more likely to grow up in neighborhoods that their parents say aren't great for raising children, and their parents worry about them getting shot, beaten up or in trouble with the law.

D) The class differences in child rearing are growing—a symptom of widening inequality with far-reaching consequences. Different upbringings set children on different paths and can deepen socioeconomic divisions, especially because education is strongly linked to earnings. Children grow up learning the skills to succeed in their socioeconomic stratum (阶层), but not necessarily others.

E)"Early childhood experiences can be very consequential for children's long-term social, emotional and cognitive development," said Sean Reardon, professor of poverty and inequality in education at Stanford University. "And because those influence educational success and later earnings, early childhood experiences cast a lifelong shadow." The cycle continues: Poorer parents have less time and fewer resources to invest in their children, which can leave children less prepared for school and work, which leads to lower earnings.

F) American parents want similar things for their children, the Pew report and past research have found: for them to be healthy and happy, honest and ethical, caring and compassionate. There is no best parenting style or philosophy, researchers say, and across income groups, 92% of parents say they are doing a good job at raising their children. Yet they are doing it quite differently. Middle-class and higher-income parents see their children as projects in need of careful cultivation, says Annette Lareau, whose groundbreaking research on the topic was published in her book Unequal Childhoods: Class, Race and Family Life. They try to develop their skills through close supervision and organized activities, and teach children to question authority figures and navigate elite institutions.

G) Working-class parents, meanwhile, believe their children will naturally thrive, and give them far greater independence and time for free play. They are taught to be compliant and respectful to adults. There are benefits to both approaches. Working-class children are happier, more independent, complain less and are closer with family members, Ms. Lareau found. Higher-income children are more likely to declare boredom and expect their parents to solve their problems. Yet later on, the more affluent children end up in college and on the way to the middle class, while working-class children tend to struggle. Children from higher-income families are likely to have the skills to navigate bureaucracies and succeed in schools and workplaces, Ms. Lareau said.

H) "Do all parents want the most success for their children? Absolutely," she said. "Do some strategies give children more advantages than others in institutions? Probably they do. Will parents be damaging children if they have one fewer organized activity? No, I really doubt it."

I) Social scientists say the differences arise in part because low-income parents have less money to spend on music class or preschool, and less flexible schedules to take children to museums or attend school events. Extracurricular activities reflect the differences in child rearing in the Pew survey, which was of a nationally representative sample of 1,807 parents. Of families earning more than $75,000 a year, 84% say their children have participated in organized sports over the past year, 64% have done volunteer work and 62% have taken lessons in music, dance or art. Of families earning less than $30,000, 59% of children have done sports, 37% have volunteered and 41% have taken arts classes.

J) Especially in affluent families, children start young. Nearly half of high-earning, college-graduate parents enrolled their children in arts classes before they were 5, compared with one-fifth of low-income, less- educated parents. Nonetheless, 20% of well-off parents say their children's schedules are too hectic, compared with 8% of poorer parents.

K) Another example is reading aloud, which studies have shown gives children bigger vocabularies and better reading comprehension in school. 71% of parents with a college degree say they do it every day, compared with 33% of those with a high school diploma or less. White parents are more likely than others to read to their children daily, as are married parents. Most affluent parents enroll their children in preschool or day care, while low-income parents are more likely to depend on family members. Discipline techniques vary by education level: 8% of those with a postgraduate degree say they often beat their children, compared with 22% of those with a high school degree or less.

L) The survey also probed attitudes and anxieties. Interestingly, parents' attitudes toward education do not seem to reflect their own educational background as much as a belief in the importance of education for upward mobility. Most American parents say they are not concerned about their children's grades as long as they work hard. But 50% of poor parents say it is extremely important to them that their children earn a college degree, compared with 39% of wealthier parents.

M) Less-educated parents, and poorer and black and Latino parents are more likely to believe that there is no such thing as too much involvement in a child's education. Parents who are white, wealthy or college- educated say too much involvement can be bad. Parental anxieties reflect their circumstances. High- earning parents are much more likely to say they live in a good neighborhood for raising children. While bullying is parents' greatest concern over all, nearly half of low-income parents worry their child will get shot, compared with one-fifth of high-income parents. They are more worried about their children being depressed or anxious.

N) In the Pew survey, middle-class families earning between $30,000 and $75,000 a year fell right between working-class and high-earning parents on issues like the quality of their neighborhood for raising children, participation in extracurricular activities and involvement in their children' s education.

O) Children were not always raised so differently. The achievement gap between children from high- and low-income families is 30-40% larger among children born in 2001 than those born 25 years earlier, according to Mr. Reardon's research. People used to live near people of different income levels; neighborhoods are now more segregated by income. More than a quarter of children live in single-parent households—a historic high, according to Pew—and these children are three times as likely to live in poverty as those who live with married parents. Meanwhile, growing income inequality has coincided with the increasing importance of a college degree for earning a middle-class wage.

P) Yet there are recent signs that the gap could be starting to shrink. In the past decade, even as income inequality has grown, some of the socioeconomic differences in parenting, like reading to children and going to libraries, have narrowed.

Q) Public policies aimed at young children have helped, including public preschool programs and reading initiatives. Addressing differences in the earliest years, it seems, could reduce inequality in the next generation.

36. Working-class parents teach their children to be obedient and show respect to adults.

37. American parents, whether rich or poor, have similar expectations of their children despite different ways of parenting.

38. While rich parents are more concerned with their children's psychological well-being, poor parents are more worried about their children's safety.

39. The increasing differences in child rearing between rich and poor families reflect growing social inequality.

40. Parenting approaches of working-class and affluent families both have advantages.

41. Higher-income families and working-class families now tend to live in different neighborhoods.

42. Physical punishment is used much less by well-educated parents.

43. Ms. Lareau doesn't believe participating in fewer after-class activities will negatively affect children's development.

44. Wealthy parents are concerned about their children's mental health and busy schedules.

45. Some socioeconomic differences in child rearing have shrunk in the past ten years.

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TEXT22

Who’s Really Addicting You to Technology?

A. “Nearly everyone I know is addicted in some measure to the Internet,” wrote Tony Schwartz in The New York Times. It’s a common complaint these days. A steady stream of similar headlines accuse the Net and its offspring apps, social media sites and online games of addicting us to distraction

B. There’s little doubt that nearly everyone who comes in contact with the Net has difficulty disconnecting. Many of us, like Schwartz, struggle to stay focused on tasks that require more concentration than it takes to post a status update. As one person ironically put it in the comments section of Schwartz's online article, “As I was reading this very excellent article. I stopped at least half a dozen times to cheek my email.”

C. There's something different about this technology: it is both invasive and persuasive. But who's at fault for its overuse？ To find solutions, it's important to understand what we’re dealing with. There are four parties conspiring to keep you connected: the tech, your boss, your friends and you.

D. The technologies themselves, and their makers, are the easiest suspects to blame for our diminishing attention spans. Nicholas Carr, author of The Shallows： What the Internet Is Doing to Our Brains, wrote, “The net is designed to be an interruption system, a machine geared to dividing attention.”

E. Online services like Facebook, Twitter and the like, are called out of manipula-tion—making products so good that people can’t stop using them. After studying these products for several years, I wrote a book about how they do it. I learned it all starts with the business model. Since these services rely on advertising revenue, the more frequently you use them, the more money they make. It’s no winder these companies employ teams of people focused on engineering their services to be as engaging as possible. These products aren't habit-forming by chance; it's by design. They have an incentive to keep us hooked.

F. However, as good as these services are, there are simple steps we can take to keep them at bay. For example, we can change how often we receive the distracting notifications that trigger our urge to check. According to Adam Marchick, CEO of mobile marketing company Kahuna, less than 15 percent of smartphone users ever bother to adjust their notification settlings--meaning the remaining 85 percent of us default to the app makers' every preset trigger. Google and Apple have made it far too difficult to adjust these settings so it's up to us to take steps ensure we set these triggers to suit our own needs, not the needs of the app makers’.

G. While companies like Facebook harvest attention to generate revenue from advertisers, other technologies have no such agenda. Take email, for example. This system couldn't care less how often you use it. Yet to many, email is the most habit-forming medium of all. We check email at all hours of the day—we're obsessed, But why? Because that's what the boss wants. For almost all white-collar jobs, email is the primary tool of corporate communication, A slow response to a message could hurt not only your reputation but also your livelihood.

H. Your friends are also responsible. Think about this familiar scene. People gathered around a table, enjoying food and each other's company. There's laughter and a bit of kidding. Then, during an interval in the conversation, someone takes out their phone to check who knows what. Barely anyone notices and no one says a thing.

I. Now imagine the same dinner, but instead of checking their phone, the person belches(打嗝） -loudly. Everyone notices. Unless the meal takes place in a beer house, this is considered bad manners. The impolite act violates the basic rules of etiquette. One has to wonder: why don't we apply the same social norms to checking phones during meals, meetings and conversations as we do to other antisocial behaviors? Somehow, we accept it and say nothing when someone offends.

J. The reality is taking one's phone out at the wrong time is worse than belching because, unlike other minor offense, checking tech is contagious. Once one person looks at their phone, other people feel compelled to do the same, starting a chain reaction. The more people are on their phones, the fewer people are talking until finally you are the only one left not reading email or checking Twitter. From a societal perspective, phone checking is less like belching in public and more like another bad habit. Our phones are like cigarettes-something to do when we're anxious, bored or when our fingers need something to toy with Seeing others enjoy a smoke, or sneak a quick glance, is too tempting to resist and soon everyone is doing it.

K. The technology, your boss, and your friends, all influence how often you find yourself using (or overusing)these gadgets. But there's still someone who deserves scrutiny--the person holding the phone.

L. I have a confession. Even though I study habit-forming technology for a living, disconnecting is not easy for me. I'm online far more than I'd like. Like Schwartz and so many others, I often find myself distracted and off tack. I wanted to know why so I began self-monitoring to try to understand my behavior. That's when I discovered an uncomfortable truth. I use technology as an escape. When I'm doing something I'd rather not do, or when I'm someplace I'd rather not be, I use my phone to port myself elsewhere. I found that this ability to instantly shift my attention was often a good thing, like when passing time on public transportation, But frequently my tech use was not so benign. When I faced difficult work, like thinking through an article idea or editing the same draft for the hundredth time, for example, a more sinister screen would draw me in. I could easily escape discomfort. temporarily. by answering email or browsing the web under the pretense of so-called "research." Though I desperately wanted to lay blame elsewhere, I finally had to admit that my bad habits had less to do with new-age. technology and more to do with old-fashioned procrastination(拖延）

M. It's easy to blame technology for being so distracting, but distraction is nothing new. Aristotle and Socrates debated the nature of “akrasia”--our tendency to do things against our interests. If we're honest with ourselves, tech is just another way to occupy our time and minds, If we weren’t on our devices. We’d likely do similarly unproductive.

N. Personal technology is indeed more engaging than ever, and there's no doubt companies are engineering their products and services to be more compelling and attractive. But would we want it any other way? The intended result of making something better is that people use it more. That's not necessarily a problem, that's progress.

O. These improvements don't mean we shouldn't attempt to control our use of technology. In order to make sure it doesn't control us, we should come to terms with the fact that it's more than the technology itself that’s responsible for our habits. Our workplace culture, social norms and individual behaviors all play a part. To put technology in its place, we must be conscious not only of how technology is changing, but also of how it is changing us.

36.Online services are so designed that the more they are used, the more profit they generate.

37. The author admits using technology as an escape from the task at hand.

38. Checking phones at dinners is now accepted as normal but not belching.

39. To make proper use of technology, we should not only increase our awareness of how it is changing but also how it is impacting us.

40. Most of us find it hard to focus on our immediate tasks because of Internet distractions.

41. When one person starts checking their phone, the others will follow suit.

42.The great majority of smartphone users don' t take the trouble to adjust their settings to suit their own purposes.

43.The Internet is regarded by some as designed to distract our attention.

44. The author attributes his tech addiction chiefly to his habit of putting off doing what he should do right away.

45.White-collar workers check email round the clock because it is required by their employers.

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TEXT23

Data sharing: An open mind on open date

[A]It is a movement building steady momentum: a call to make research data, software code and experimental methods publicly available and transparent. A spirit of openness is gaining acceptance in the science community, and is the only way, say advocates, to address a 'crisis' in science whereby too few findings are successfully reproduced. Furthermore, they say, it is the best way for researchers to gather the range of observations that are necessary to speed up discoveries or to identify large-scale trends.

[B]The open-data shift poses a confusing problem for junior researchers. On the one hand, the drive to share is gathering official steam. Since 2013, global scientific bodies have begun to back politics that support increased public access to research. On the other hand, scientists disagree about how much and when they should share date, and they debate whether sharing it is more likely to accelerate science and make it more robust, or to introduce vulnerabilities and problems. As more journals and funders adopt data-sharing requirements, and as a growing number of enthusiasts call for more openness, junior researchers must find their place between adopters and those who continue to hold out, even as they strive to launch their own careers.

[C]One key challenge facing young scientists is how to be open without becoming scientifically vulnerable. They must determine the risk of jeopardizing a job offer or a collaboration proposal from those who are wary of-or unfamiliar with
-open science. And they must learn how to capitalize on the movement's benefits, such as opportunities for more citations and a way to build a reputation without the need for conventional metrics, such as publication in high-impact journals.

[D]Some fields have embraced open data more than others. Researchers in psychology, a field rocked by findings of irreproducibility in the past few years, have been especially vocal sup-porters of the drive for more-open science. A few psychology journals have created incentives to increase interest in reproducible science—for example, by affixing an ‘open-data’ badge to articles that clearly state where data are available. According to social psychologist Brian Nosek, executive director of the Center for Open Science, the average data-sharing rate for the journal Psychological Science, which uses the badges, increased tenfold to 38% from 2013 to 2015.

[E]Funders, too, are increasingly adopting an open-data policy .Several strongly encourage, and some require, a date-management plan that makes data available .The US National Science Foundation is among these, Some philanthropic (慈善的) funders, including the Bill &Melinda Gates Foundation in Seattle, Washington, and the Wellcome Trust in London, also data mandate open data from their grant recipients.

[F]But many young researchers, especially those who have not been mentored in open science, are uncertain about whether to share or to stay private. Graduate students and postdocs, who often are working on their lab head's grant, may have no choice if their supervisor or another senior opposes sharing.

[G]Some fear that the potential impact of sharing is too high, especially at the early stages of a career." Everybody has a scary story about someone getting scooped(被抢先),” says New York University astronomer David Hogg. Those fears may be a factor in a lingering hesitation to share data even when publishing in journals that mandate it.

[H]Researchers at small labs or at institutions focused on teaching arguably have the most to lose when sharing hard-won data. ""With my institution and teaching load, I don't have postdocs and grad students", says Terry McGlynn, a tropical biologist at California State University, Dominguez Hills. “The stakes are higher to share data because it's a bigger fraction of what’s happening in my lab.”

[I]Researchers also point to the time sink that is involved in preparing data for others to view. Once the data and associated materials appear in a repository(存储库), answering questions and handling complaints can take many hours.

[J]The time investment can present other problems. In some cases, says data scientist Karthik Ram, it may be difficult for junior researchers to embrace openness when senior colleagues—many of whom head selection and promotion committees
—might ridicule what they may view as misplaced energies. "I've heard this recently -that embracing the idea of open data
and code makes traditional academics uncomfortable, "says Ram. "The concern seems to be that open advocates don't spend their time being as productive as possible."

[K]An open-science stance can also add complexity to a collaboration. Kate Ratliff, who studies social attitudes at the University of Florida, Gainesville, says that it can seem as if there are two camps in a field-those who care about open science and those who don't . " There’s a new area to navigate-‘Are you cool with the fact that I'll want to make the data open?'-when talking with somebody about an interesting research idea, "she says.

[L]Despite complications and concerns, the upsides of sharing can be significant. For example, when information is uploaded to a repository, a digital object identifier(DOI)is assigned. Scientists can use a DOI to publish each step of the research life cycle, not just the final paper. In so doing, they can potentially get three citations- one each for the data and software. in addition to the paper itself. And although some say that citations for software or data have little currency in academia, they can have other benefits.

[M]Many advocates think that transparent data procedures with a date and time stamp will protect scientists from being scooped. "This is the sweet spot between sharing and getting credit for it. while discouraging plagiarism(剽 窃). " says Ivo Grigorov, a project coordinator at the National Institute of Aquatic Resources Research Secretariat in Charlottenlund, Denmark. Hogg says that scooping is less of a problem than many think. "The two cases I'm familiar with didn't involve open data or code, "he says.

[N]Open science also offers junior researchers the chance to level the playing field by gaining better access to crucial date. Ross Mounce, a postdoc studying evolutionary biology at the University of Cambridge, UK, is a vocal champion of open science, partly because his fossil based research on access to others' data. He says that more openness in science could help to discourage what some perceive as a common practice of shutting out early-career scientists' requests for data.

[O]Communication also helps for those who worry about jeopardizing a collaboration, he says, Concerns about open

science should be discussed at the outset of a study. “Whenever you start a project with someone, you have to establish a clear understanding of expectations for who owns the data, at what point they go public and who can do what with them,” he says.

[P]In the end, sharing data, software and materials with colleagues can help an early -career researcher to gain recognition--a crucial component of success. "The thing you are searching for reputation" says Titus Brown, a genomics(基因组学) researcher at the University of California, Davis. "To get grants and jobs you have to be relevant and achieve some level of public recognition. Anything you do that advances your presence- especially in a larger sphere, outside the communities you know- is a net win."

36.Astronomer David Hogg doesn't think scooping is as serious a problem as generally thought.

37.Some researchers are hesitant to make their data public for fear that others might publish something similar before them.

38.Some psychology journals have offered incentives to encourage authors to share their data.

39.There is a growing demand in the science community that research data be open to the public.

40.Sharing data offers early-career researchers the chance to build a certain level of reputation.

41.Data sharing enables scientists to publish each step of their research work, thus leading to more citations.

42.Scientists hold different opinions about the extent and timing of data sharing.

43.Potential problems related to data sharing should be made known to and discussed by all participants at the beginning of a joint research project.

44.Sharing data and handling data-related issues can be time-consuming.

45.Junior researchers may have no say when it comes to sharing data.

阅读答案：M G D A P L B O I F

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TEXT24

Apple’s Stance Highlights a More Confrontational Teach Industry

A)The battle between Apple and law enforcement officials over unlocking a terrorist’s smartphone is the culmination of a slow turning of the tables between the technology industry and the United States government.

B)After revelations by the former National Security Agency contractor Edward J. Snowden in 2013 that the government both cozied up to (讨 好) certain tech companies and hacked into others to gain access to private data on an enormous scale, tech giants began to recognize the United States government as a hostile actor. But if the confrontation has crystallized in this latest battle, it may already be heading toward a predictable conclusion: In the long run, the tech companies are destined to emerge victorious.

C)It may not seem that way at the moment. On the one side, you have the United States government’s mighty legal and security apparatus fighting for data of the most sympathetic sort: the secrets buried in a dead mass murderer’s phone. The action stems from a federal court order issued on Tuesday requiring Apple to help the Federal Bureau of Investigation (F.B.I) to unlock an iPhone used by one of the two attackers who killed 14 people in San Bernardino, California, in December.

D)In the other corner is the world’s most valuable company, whose chief executive, Timothy D. Cook, has said he will appeal the court’s order. Apple argues that it is fighting to preserve a principle that most of us who are addicted to our smartphones can defend: Weaken a single iPhone so that its contents can be viewed by the American government and you risk weakening all iPhones for any government intruder, anywhere.

E)There will probably be months of legal tussling, and it is not at all clear which side will prevail in court, nor in the battle for public opinion and legislative favor. Yet underlying all of this is a simple dynamic: Apple, Google, Facebook and other companies hold most of the cards in this confrontation. They have our data, and their businesses depend on the global public’s collective belief that they will do everything they can to protect that data.

F)Any crack in that front could be fatal for tech companies that must operate worldwide. If Apple is forced to open up an iPhone for an American law enforcement investigation, what is to prevent it from doing so for a request from the Chinese or the Iranians? If Apple is forced to write code that lets the F.B.I. get into the Phone 5c used by Syed Rizwan Farook, the male attacker in the San Bernardino attack, who would be responsible if some hacker got hold of that code and broke into its other devices?

G)Apple’s stance on these issues emerged post-Snowden, when the company started putting in place a series of technologies that, by default, make use of encryption to limit access to people’s data. More than that, Apple - and, in different ways, other tech companies, including Google, Facebook, Twitter and Microsoft - have made their opposition to the government’s claims a point of corporate pride.

H)Appl’s emerging global brand is privacy; it has staked its corporate reputation, not to mention the investment of considerable technical and financial resources, on limiting the sort of mass surveillance that was uncovered by Mr. Snowden. So now, for many cases involving governmental intrusions into data, once-lonely privacy advocates find themselves fighting alongside the most powerful company in the world.

I)“A comparison point is in the 1990s battles over encryption,” said Kurt Opsahl, general counsel of the Electronic Frontier Foundation, a privacy watchdog group. “Then you had a few companies involved, but not one of the largest companies in the world coming out with a lengthy and impassioned post, like we saw yesterday from Tim Cook. Its profile has really been raised.”

J)Apple and other tech companies hold another ace: the technical means to keep making their devices more and more inaccessible. Note that Apple’s public opposition to the government’s request is itself a hindrance to mass government intrusion. And to get at the contents of a single iPhone, the government says it needs a court order and Apple’s help to write new code; in earlier versions of the iPhone, ones that were created before Apple found religion on (热衷于) privacy, the
F.B.I. may have been able to break into the device by itself.

K)You can expect that noose (束缚) to continue to tighten. Experts said that whether or not Apple loses this specific case, measures that it could put into place in the future will almost certainly be able to further limit the government’s reach.

L)That’s not to say that the outcome of the San Bernardino case is insignificant. As Apple and several security experts have argued, an order compelling Apple to write software that gives the F.B.I. access to the iPhone in question would establish an unsettling precedent. The order essentially asks Apple to hack its own devices, and once it is in place, the precedent could be used to justify law enforcement efforts to get around encryption technologies in other investigations far removed from national security threats.

M)Once armed with a method for gaining access to iPhones, the government could ask to use it proactively (先发制人地), before a suspected terrorist attack - leaving Apple in a bind as to whether to comply or risk an attack and suffer a public-relations nightmare. “This is a brand-new salvo in the war against encryption,” Mr. Opsahl said. “We’ve had plenty of debates in Congress and the media over whether the government should have a backdoor, and this is an end run around that - here they come with an order to create that backdoor.”

N)Yet it’ s worth noting that even if Apple ultimately loses this case, it has plenty of technical means to close a backdoor over time. “If they’re anywhere near worth their salt as engineers, I bet they’re rethinking their threat model as we speak,” said Jonathan Zdziarski, a digital forensic expert who studies the iPhone and its vulnerabilities.

O)One relatively simple fix, Mr. Zdziarski said, would be for Apple to modify future versions of the iPhone to require a user to enter a passcode before the phone will accept the sort of modified operating system that the F.B.I. wants Apple to create. That way, Apple could not unilaterally introduce a code that weakens the iPhone — a user would have to consent to it.

P)“Nothing is 100 percent hacker-proof,” Mr. Zdziarski said, but he pointed out that the judge’ s order in this case required Apple to provide “reasonable security assistance” to unlock Mr. Farook’ s phone. If Apple alters the security model of future iPhones so that even its own engineers’ “reasonable assistance” will not be able to crack a given device when compelled by the government, a precedent set in this case might lose its lasting force. In other words, even if the F.B.I. wins this case, in the long run, it loses.

36.It is a popular belief that tech companies are committed to protecting their customers’ private data.

37.The US government believes that its access to people’ s iPhones could be used to prevent terrorist attacks.

38.A federal court asked Apple to help the FBI access data in a terrorist’ s iPhone.

39.Privacy advocates now have Apple fighting alongside them against government access to personal data.

40.Snowden revealed that the American government had tried hard to access private data in massive scale.

41.The FBI might have been able to access private data in earlier iPhones without Apple’ s help.

42.After the Snowden incident, Apple made clear its position to counter government intrusion into personal data by means of encryption.

43.According to one digital expert, no iPhone can be entirely free from hacking.

44.Timothy Cook’ s long web post has helped enhance Apple’ s image.

45.Apple’ s CEO has decided to appeal the federal court’ s order to unlock a user’ s iPhone.

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TEXT25

Can Societies Be Rich and Green?

[A] “If our economies are to flourish, if global poverty is to be eliminated and if the well-being of the world’s people enhanced—not just in this generation but in succeeding generations—we must make sure we take care of the natural environment and resources on which our economic activity depends.” That statement comes not, as you might imagine, from a stereotypical tree-hugging, save-the-world greenie (环保主义者), but from Gordon Brown, a politician with a reputation for rigor, thoroughness and above all, caution.

[B] A surprising thing for the man who runs one of the world’s most powerful economies to say? Perhaps; though in the run-up to the five-year review of the Millennium (千年的) Goals, he is far from alone. The roots of his speech, given in March at the roundtable meeting of environment and energy ministers from the G20 group of nations, stretch back to 1972, and the United Nations Conference on the Human Environment in Stockholm.

[C] “The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world,” read the final declaration from this gathering, the first of a sequence which would lead to the Rio de Janeiro Earth Summit in 1992 and the World Development Summit in Johannesburg three years ago.

[D] Hunt through the reports prepared by UN agencies and development groups—many for conferences such as this year’s Millennium Goals review—and you will find that the linkage between environmental protection and economic progress is a common thread.

[E] Managing ecosystems sustainably is more profitable than exploiting them, according to the Millennium Ecosystem Assessment. But finding hard evidence to support the thesis is not so easy. Thoughts turn first to some sort of global statistic, some indicator which would rate the wealth of nations in both economic and environmental terms and show a relationship between the two.

[F] If such an indicator exists, it is well hidden. And on reflection, this is not surprising; the single word “environment” has so many dimensions, and there are so many other factors affecting wealth—such as the oil deposits—that teasing out a simple economy-environment relationship would be almost impossible.

[G] The Millennium Ecosystem Assessment, a vast four-year global study which reported its initial conclusions earlier this year, found reasons to believe that managing ecosystems sustainably—working with nature rather than against it—might be less profitable in the short term, but certainly brings long-term rewards.

[H] And the World Resources Institute (WRI) in its World Resources 2005 report, issued at the end of August, produced several such examples from Africa and Asia; it also demonstrated that environmental degradation affects the poor more than the rich, as poorer people derive a much higher proportion of their income directly from the natural resources around them.

[I] But there are also many examples of growing wealth by trashing the environment, in rich and poor parts of 6 the world alike, whether through unregulated mineral extraction, drastic water use for agriculture, slash-and-burn farming, or fossil-fuel-guzzling (大量消耗) transport. Of course, such growth may not persist in the long term— which is what Mr. Brown and the Stockholm declaration were both attempting to point out. Perhaps the best example of boom growth and bust decline is the Grand Banks fishery. For almost five centuries a very large supply of cod (鳕鱼) provided abundant raw material for an industry which at its peak employed about 40,000 people, sustaining entire communities in Newfoundland. Then, abruptly, the cod population collapsed. There were no longer enough fish in the sea for the stock to maintain itself, let alone an industry. More than a decade later, there was no sign of the ecosystem re-building itself. It had, apparently, been fished out of existence; and the once mighty Newfoundland fleet now gropes about frantically for crab on the sea floor.

[J] There is a view that modern humans are inevitably sowing the seeds of a global Grand Banks-style disaster. The idea is that we are taking more out of what you might call the planet's environmental bank balance than it can sustain; we are living beyond our ecological means. One recent study attempted to calculate the extent of this " ecological overshoot of the human economy," and found that we are using 1.2 Earth's-worth of environmental goods and services—the implication being that at some point the debt will be called in, and all those services—the things which the planet does for us for free—will grind to a halt.

[K] Whether this is right, and if so where and when the ecological axe will fall, is hard to determine with any precision—which is why governments and financial institutions are only beginning to bring such risks into their economic calculations. It is also the reason why development agencies are not united in their view of environmental issues; while some, like the WRI, maintain that environmental progress needs to go hand-in-hand with economic development, others argue that the priority is to build a thriving economy, and then use the wealth created to tackle environmental degradation.

[L] This view assumes that rich societies will invest in environmental care. But is this right? Do things get better or worse as we get richer? Here the Stockholm declaration is ambiguous. "In the developing countries," it says, "most of the environmental problems are caused by under-development." So it is saying that economic development should make for a cleaner world? Not necessarily; "In the industralized countries, environmental problems are generally related to industrialization and technological development," it continues. In other words, poor and rich both over-exploit the natural world, but for different reasons. It's simply not true that economic growth will surely make our world cleaner.

[M] Clearly, richer societies are able to provide environmental improvements which lie well beyond the reach of poorer communities. Citizens of wealthy nations demand national parks, clean rivers, clean air and poison-free food. They also, however, use far more natural resources-fuel, water (all those baths and golf courses) and building materials.

[N] A case can be made that rich nations export environmental problems, the most graphic example being climate change. As a country's wealth grows, so do its greenhouse gas emissions. The figures available will not be completely accurate. Measuring emissions is not a precise science, particularly when it comes to issues surrounding land use; not all nations have released up-to-date data, and in any case, emissions from some sectors such as aviation are not included in national statistics. But the data is exact enough for a clear trend to be easily discernible. As countries become richer, they produce more greenhouse gases; and the impact of those gases will fall primarily in poor parts of the world.

[O] Wealth is not, of course, the only factor involved. The average Norwegian is better off than the average US citizen, but contributes about half as much to climate change. But could Norway keep its standard of living and yet cut its emissions to Moroccan or even Ethiopian levels? That question, repeated across a dozen environmental issues and across our diverse planet, is what will ultimately determine whether the human race is living beyond its ecological means as it pursues economic revival.

36. Examples show that both rich and poor countries exploited the environment for economic progress.

37. Environmental protection and improvement benefit people all over the world.

38. It is not necessarily true that economic growth will make our world cleaner.

39. The common theme of the UN reports is the relation between environmental protection and economic growth.

40. Development agencies disagree regarding how to tackle environment issues while ensuring economic progress.

41. It is difficult to find solid evidence to prove environmental friendliness generates more profits than exploiting the natural environment.

42. Sustainable management of ecosystems will prove rewarding in the long run.

43. A politician noted for being cautious asserts that sustainable human development depends on the natural environment.

44. Poor countries will have to bear the cost for rich nations' economic development.

45. One recent study warns us of the danger of the exhaustion of natural resources on Earth.

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TEXT26

Reform and Medical Costs

[A] Americans are deeply concerned about the relentless rise in health care costs and health insurance premiums. They need to know if reform will help solve the problem. The answer is that no one has an easy fix for rising medical costs. The fundamental fix—reshaping how care is delivered and how doctors are paid in a wasteful, abnormal system—is likely to be achieved only through trial and error and incremental (渐进的) gains.

[B] The good news is that a bill just approved by the House and a bill approved by the Senate Finance Committee would implement or test many reforms that should help slow the rise in medical costs over the long term. As a report in The New England Journal of Medicine concluded, "Pretty much every proposed innovation found in the health policy literature these days is contained in these measures."

[C] Medical spending, which typically rises faster than wages and the overall economy, is propelled by two things: the high prices charged for medical services in this country and the volume of unnecessary care delivered by doctors and hospitals, which often perform a lot more tests and treatments than a patient really needs.

[D] Here are some of the important proposals in the House and Senate bills to try to address those problems, and why it is hard to know how well they will work.

[E] Both bills would reduce the rate of growth in annual Medicare payments to hospitals, nursing homes and other providers by amounts comparable to the productivity savings routinely made in other industries with the help of new technologies and new ways to organize work. This proposal could save Medicare more than $100 billion over the next decade. If private plans demanded similar productivity savings from providers, and refused to let providers shift additional costs to them, the savings could be much larger. Critics say Congress will give in to lobbyists and let inefficient providers off the hook (放过). That is far less likely to happen if Congress also adopts strong "pay-go" rules requiring that any increase in payments to providers be offset by new taxes or budget cuts.

[F] The Senate Finance bill would impose an excise tax (消费税) on health insurance plans that cost more than $8,000 for an individual or $21,000 for a family. It would most likely cause insurers to redesign plans to fall beneath the threshold. Enrollees would have to pay more money for many services out of their own pockets, and that would encourage them to think twice about whether an expensive or redundant test was worth it. Economists project that most employers would shift money from expensive health benefits into wages, The House bill has no similar tax. The final legislation should.

[G] Any doctor who has wrestled with multiple forms from different insurers, or patients who have tried to understand their own parade of statements, know that simplification ought to save money. When the health insurance industry was still cooperating in reform efforts, its trade group offered to provide standardized forms for automated processing. It estimated that step would save hundreds of billions of dollars over the next decade. The bills would lock that pledge into law.

[H] The stimulus package provided money to convert the inefficient, paper-driven medical system to electronic records that can be easily viewed and transmitted. This requires open investments to help doctors convert. In time it should help restrain costs by eliminating redundant tests, preventing drug interactions, and helping doctors find the best treatments.

[I] Virtually all experts agree that the fee-for-service system—doctors are rewarded for the quantity of care rather than its quality or effectiveness—is a primary reason that the cost of care is so high. Most agree that the solution is to push doctors to accept fixed payments to care for a particular illness or for a patient's needs over a year. No one knows how to make that happen quickly. The bills in both houses would start pilot projects within Medicare. They include such measures as accountable care organizations to take charge of a patient's needs with an eye on both cost and quality, and chronic disease management to make sure the seriously ill, who are responsible for the bulk of all health care costs, are treated properly. For the most part, these experiments rely on incentive payments to get doctors to try them.

[J] Testing innovations do no good unless the good experiments are identified and expanded and the bad ones are dropped. The Senate bill would create an independent commission to monitor the pilot programs and recommend changes in Medicare's payment policies to urge providers to adopt reforms that work. The changes would have to be approved or rejected as a whole by Congress, making it hard for narrow-interest lobbies to bend lawmakers to their will.

[K] The bills in both chambers would create health insurance exchanges on which small businesses and individuals could choose from an array of private plans and possibly a public option. All the plans would have to provide standard benefit packages that would be easy to compare. To get access to millions of new customers, insurers would have a strong incentive to sell on the exchange. And the head-to-head competition might give them a strong incentive to lower their prices, perhaps by accepting slimmer profit margins or demanding better deals from providers.

[L] The final legislation might throw a public plan into the competition, but thanks to the fierce opposition of the insurance industry and Republican critics, it might not save much money. The one in the House bill would have to negotiate rates with providers, rather than using Medicare rates, as many reformers wanted.

[M] The president's stimulus package is pumping money into research to compare how well various treatments work. Is surgery, radiation or careful monitoring best for prostate (前列腺) cancer? Is the latest and most expensive cholesterol-lowering drug any better than its common competitors? The pending bills would spend additional money to accelerate this effort.

[N] Critics have charged that this sensible idea would lead to rationing of care. (That would be true only if you believed that patients should have an unrestrained right to treatments proven to be inferior.) As a result, the bills do not require, as they should, that the results of these studies be used to set payment rates in Medicare.

[O] Congress needs to find the courage to allow Medicare to pay preferentially for treatments proven to be superior. Sometimes the best treatment might be the most expensive. But overall, we suspect that spending would come down through elimination of a lot of unnecessary or even dangerous tests and treatments.

[P] The House bill would authorize the secretary of health and human services to negotiate drug prices in Medicare and Medicaid. Some authoritative analysts doubt that the secretary would get better deals than private insurers already get. We believe negotiation could work. It does in other countries.

[Q] Missing from these bills is any serious attempt to rein in malpractice costs. Malpractice awards do drive up insurance premiums for doctors in high-risk specialties, and there is some evidence that doctors engage in "defensive medicine" by performing tests and treatments primarily to prove they are not negligent should they get sued.

36. With a tax imposed on expensive health insurance plans, most employers will likely transfer money from health expenses into wages.

37. Changes in policy would be approved or rejected as a whole so that lobbyists would find it hard to influence lawmakers.

38. It is not easy to curb the rising medical costs in America.

39. Standardization of forms for automatic processing will save a lot of medical expenses.

40. Republicans and the insurance industry are strongly opposed to the creation of a public insurance plan.

41. Conversion of paper to electronic medical records will help eliminate redundant tests and prevent drug interactions.

42. The high cost of medical services and unnecessary tests and treatments have driven up medical expenses.

43. One main factor that has driven up medical expenses is that doctors are compensated for the amount of care rather than its effect.

44. Contrary to analysts' doubts, the author believes drug prices may be lowered through negotiation.

45. Fair competition might create a strong incentive for insurers to charge less.

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TEXT27

The Changing Generation

[A] It turns out today's teenagers aren't so scary after all. Results of USA WEEKEND's Teens & Parents survey reveal a generation of young people who get along well with their parents and approve of the way they're being raised. They think of their parents with affection and respect. They speak with Mom or Dad when they have a problem. Most feel that their parents understand them, and they believe their family is the No. 1 priority in their parents' lives. Many even think their parents are cool! Although more than a third have an object in their rooms they would like to keep secret from their parents, rarely is it anything more alarming than a diary or off-color (低俗的) book or CD.

[B] Such results may seem surprising against the background of shocking incidents that color the way the mass media portray the young. In October 2000, the same month the survey was taken, the Washington-based Center for Media and Public Affairs wrote in its publication Media Monitor that, in a recent month of TV news coverage of American youth, just 2% of teens were shown at home, and just 1% were portrayed in a work setting. In contrast, the criminal justice system accounted for nearly one out of every five visual backgrounds. No wonder parents worry their own kids might spin out of control once they hit the turbulent waters of adolescence.

[C] The overall facts ought to reassure us. The survey shows us that today's teens are affectionate, sensible and far happier than the angry and tortured souls that have been painted for us by stereotypes. From other sources, we also know teenage crime, drug abuse and premarital sex are in general decline. We, of course, need to pay attention to youngsters who are filled with discontent and hostility, but we should not allow these extreme cases to distort our view of most young people.

[D] My own research at the Stanford Center on Adolescence uses in-depth interviews with small samples of youngsters rather than large-scale survey. Still, in my studies and others I have read, I find the same patterns as in USA WEEKEND'S survey. Today's teenagers admire their parents and welcome parental guidance about important matters such as career choice—though certainly not Mom and Dad's advice on matters of personal taste, such as music or fashion. When we ask teens to choose a hero, they usually select an older family member rather than a remote public figure. Most teens say they enjoy the company of both parents and friends.

[E] Contrary to some stereotypes, most adolescents believe they must be tolerant of differences among individuals (though they do not always find this easy in the cliquish (拉帮结派的) environment of high school). Many of them volunteer for community service with disadvantaged people. One prevalent quality we have found in teens' statements about themselves, their friends and their families is a strikingly positive emotional tone. By and large, these are very nice kids, and as the band The Who used to sing, "The kids are alright."

[F] How much is today's spirit of harmony a change from our more turbulent past? A mere generation ago, parent- child relations were described as "the generation gap." Yet even then

reports of widespread youth rebellion were overdone: Most kids in the ’60s and ’70s shared their parents’ basic values. Still, it is true that American families are growing closer at the dawn of this new millennium (千年). Perhaps there is less to fight about, with the country in a period of tranquility and the dangers of drug abuse and other unwholesome behavior well known. Perhaps in the face of impersonal and intimidating globalization, a young person’s family feels more like a friendly haven than an oppressive trap. And perhaps parents are acting more like parents than in the recent past. Within just the past five years. I have noticed parents returning to a belief that teenagers need the guidance of elders rather than the liberal, “ anything goes” mode of child-rearing that became popular in the second half of the 20th century.

[G] But missing from all these data is the sense that today’s young care very much about their country, about the broader civic and political environment, or about the future of their society. They seem to be turning inward— generally in a pro-social manner, certainly with positive benefits for intimate relationships, but too often at the expense of a connection with the present and future world beyond, including the society they will one day inherit.

[H] Recently, we examined more than 400 essays on the “laws of life” that teens from two communities had written as part of an educational program initiated by the John Templeton Foundation in Radnor, Pa. In those essays, and in follow-up interviews with a few of the teenagers, we found lots of insight, positive feeling and inspirational thinking. But we also found little interest in civic life beyond the tight circles of their family and immediate friends.

[I] For example, only one boy said he would like to be president when he grows up. When I was in high school, dozens in my class alone would have answered differently. In fact, other recent studies have found there has never been a time in American history when so small a proportion of young people have sought or accepted leadership roles in local civic organizations. It is also troubling that voting rates among our youngest eligible voters—18- to 24-year-olds—are way down: Little more than one in four now go to the polls, even in national elections, compared with almost twice that many when 18-year-olds were first given the vote.

[J] In our interviews, many students viewed politics with suspicion and distaste. “Most politicians are kind of crooked (不诚实的),” one student declared. Another, discussing national politics, said, “I feel like one person can’t do that much, and I get the impression most people don’t think a group of people can do that much.” Asked what they would like to change in the world, the students mentioned only personal concerns such as slowing down the pace of life, gaining good friends, becoming more spiritual, becoming either more materially successful or less materially oriented (depending on the student’s values), and being more respectful of the Earth, animals and other people. One boy said, “I’d rather be concentrating on artistic efforts than saving the world or something.”

[K] It is fine and healthy for teens to cultivate their personal interests, and it is good news when young people enjoy harmonious relations with their family and friends. But there is also a place in a young life for noble purposes that include a dedication to the broader society, a love of country and an aspiration to make their own leadership contributions.

[L] In the past, the young have eagerly participated in national service and civic affairs, often with lots of energy and idealism. If this is not happening today, we should ask why. Our society needs the full participation of its younger citizens if it is to continue to thrive. We know the promise is there—this is a well-grounded, talented, warm-hearted group of youngsters. We have everything to gain by encouraging them to explore the world beyond their immediate experience and to prepare themselves for their turn at shaping that world.

36. Not many young people eligible for voting are interested in local or national elections these days.

37. Parents are concerned that their children may get involved in criminal offences once they reach their teens.

38. Even during the turbulent years of last century, youth rebellion was often exaggerated in the media.

39. Teenagers of today often turn to their parents for advice on such important matters as career choice.

40. The incidence of teenage crime and misbehavior is decreasing nowadays.

41. Young people should have lofty ideals in life and strive to be leaders.

42. Some young people like to keep something to themselves and don’t want their parents to know about it.

43. It is beneficial to encourage young people to explore the broader world and get ready to make it a better place.

44. Many teenagers now offer to render service to the needy.

45. Interviews with students find many of them are only concerned about personal matters.

阅读答案：Ⅰ B F D C K A L R J

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TEXT28

Are We in an Innovation Lull?

A) Scan the highlights of this year's Consumer Electronics Show (CES), and you may get a slight feeling of having seen them before. Many of the coolest gadgets this year are the same as the coolest gadgets last year — or the year before, even. The booths are still exciting, and the demos are still just as crazy. It is still easy to be dazzled by the display of drones (无 人机)，3D printers, virtual reality goggles (B 艮镜)and more "smart" devices than you could ever hope to catalog. Upon reflection, however, it is equally easy to feel like you have seen it all before. And it is hard not to think： Are we in an innovation lull (间歇期)？

B)In some ways, the answer is yes. For years, smartphones, televisions, tablets, laptops and desk-tops have made up a huge part of the market and driven innovation. But now these segments are looking at slower growth curves — or shrinking markets in some cases — as consumers are not as eager to spend money on new gadgets. Meanwhile, emerging technologies — the drones, 3D printers and short-home devices of the world — now seem a bit too old to be called "the next big thing."

C)Basically the tech industry seems to be in an awkward period now. "There is not any one-hit wonder, and there will not be one，for years to come，'' said Gary Shapiro, president and chief executive of the Consumer Technology Associaton (CTA). In his eyes， however， that doesn't necessarily mean that innovation has stopped. It has just grown up a little. "Many industries are going out of infancy and becoming adolescents，'' Shapiro said.

D)For instance, new technologies that are building upon existing technology have not found their footing well enough to appeal to a mass audience, because, in many cases, they need to work effectively with other devices to realize their full appeal. Take the evolution of the smart home, for example. Companies are pushing it hard but make it almost overwhelming even to dip a toe in the water for the average consumer, because there are so many compatibility issues to think about. No average person wants to figure out whether their favorite calendar software works with their fridge or whether their washing machine and tablet get along. Having to install a different app for each smart appliance in your home is annoying； it would be nicer if you could manage everything together. And while you may forgive your smartphone an occasional fault, you probably have less patience for error1 messages from your door lock.

E)Companies are promoting their own standards, and the market has not had time to choose a winner yet as this is still very new. Companies that have long focused on hardware now have to think of ecosystems instead to give consumers practical solutions to their everyday problems. “The dialogue is changing from what is technologically possible to what is technologically meaningful，” said economist Shawn DuBravac. DuBravac works for CTA — which puts on the show each year — and said that this shift to a search for solutions has been noticeable as he researched his predictions for 2016.

F)“So much of what CES has been about is the cool. It is about the flashiness and the gadgets，” said John Curran, managing director of research at Accenture. “But over the last couple of years, and in this one in particular, we are starting to see companies shift from what is the largest screen size, the smallest form factor or the shiniest object and more into what all of these devices do that is practical in a consumer’s life.” Even the technology press conferences，which have been high-profile in the past and reached a level of drama and theatrics fitting for a Las Vegas stage, have a different bent to them. Rather than just dazzling with a high cool factor, there is a focus on the practical. Fitbit，for example, released its first smartwatch Monday, selling with a clear purpose — to improve your fitness — and promoting it as a “tool，not a toy.” Not only that, it supports a number of platforms： Apple’s iOS, Google’s Android and Microsoft’s Windows phone.

G)That seems to be what consumers are demanding, after all. Consumers are becoming increasingly bored with what companies have to offer： A survey of 28,000 consumers in 28 countries released by Accenture found consumers are not as excited about technology as they once were. For example, when asked whether they would buy a new smartphone this year, only 48% percent said yes — a six-point drop from 2015.

H)And when it comes to the hyper-connected super-smart world that technology firms are painting for us, it seems that consumers are growing more uneasy about handing over the massive amounts of consumer data needed to provide the personalized, customized solutions that companies need to improve their services. That could be another explanation for why companies seem to be strengthening their talk of the practicality of their devices.

I)Companies have already won part of the battle, having driven tech into every part of our lives，tracking our steps and our very heartbeats. Yet the persistent question of “Why do I need that?” — or, perhaps more tellingly, “Why do you need to know that? ’’— dogs the steps of many new ventures. Only 13 percent of respondents said that they were interested in buying a smartwatch in 2016，for example — an increase of just one percent from the
previous year despite a year of high-profile launches. That is bad news for any firm that may hope that smartwatches can make up ground for maturing smartphone and tablet markets. And the survey found flat demand for fitness monitors, smart thermostats (恒温器)and connected home cameras, as well.

J)According to the survey, that lack of enthusiasm could stem from concerns about privacy and security. Even among people who have bought connected devices of some kind, 37 percent said that they are going to be more cautious about using these devices and services in the future. A full 18 percent have even returned devices until they feel they can get safer guarantees against having their sensitive information hacked.

K)That, too, explains the heavy Washington presence at this year's show, as these new technologies intrude upon heavily regulated areas. In addition to many senior officials from the Federal Trade and Federal Communications commissions > this year's list of policy makers also includes appearances from Transportation Secretary Anthony Foxx, to talk about smart cities, and Federal Aviation Administration Administrator Michael Huerta, to talk about drones.

L)Curran, the Accenture analyst, said that increased government interest in the show makes sense as technology becomes a larger part of our lives. "There is an incompatibility in the rate at which these are advancing relative to the way we're digesting it," he said. "Technology is becoming bigger and more aspirational, and penetrating almost every aspect of our lives. We have to understand and think about the implications, and balance these great innovations with the potential downsides they naturally carry with them."

36.Consumers are often hesitant to try smart-home devices because they are worried about compatibility problems.

37.This year's electronics show featured the presence of many officials from the federal government.

38.The market demand for electronic devices is now either declining or not growing as fast as before.

39.One analyst suggests it is necessary to accept both the positive and negative aspects of innovative products.

40.The Consumer Electronics Show in recent years has begun to focus more on the practical value than the showiness of electronic devices.

41.Fewer innovative products were found at this year’s electronic products show.

42.Consumers are becoming more worried about giving personal information to tech companies to get customized products and services.

43.The Consumer Technology Association is the sponsor of the annual Consumer Electronics Show.

44.Many consumers wonder about the necessity of having their fitness monitored.

The electronic industry is maturing even though no wonder products hit the market.

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TEXT29

Countries Rush for Upper Hand in Antarctica

A)On a glacier-filled island with fjords (峡湾)and elephant seals, Russia has built Antarctica's first Orthodox church on a hill overlooking its research base. Less than an hour away by snowmobile, Chinese laborers have updated the Great Wall Station, a vital part of China's plan to operate five bases on Antarctica, complete with an indoor badminton court and sleeping quarters for 150 people. Not to be outdone, India's futuristic new Bharathi base, built on stilts (柱子)using 134 interlocking shipping containers, resembles a spaceship. Turkey and Iran have announced plans to build bases» too.

B)More than a century has passed since explorers raced to plant their flags at the bottom of the world, and for decades to come this continent is supposed to be protected as a scientific preserve, shielded from intrusions like military activities and mining. But an array of countries are rushing to assert greater influence here, with an eye not just towards the day those protective treaties expire, but also for the strategic and commercial opportunities that already exist.

C)The newer players are stepping into what they view as a treasure house of resources. Some of the ventures focus on the Antarctic resources that are already up for grabs, like abundant sea life. South Korea, which operates state-of-the-art bases here, is increasing its fishing of krill (磷奸)，found in abundance in the Southern Ocean, while Russia recently frustrated efforts to create one of the world's largest ocean sanctuaries here.

D)Some scientists are examining the potential for harvesting icebergs from Antarctica, which is estimated to have the biggest reserves of fresh water on the planet. Nations are also pressing ahead with space research and satellite projects to expand their global navigation abilities.

E)Building on a Soviet-era foothold, Russia is expanding its monitoring stations for Glonass, its version of the Global Positioning System (GPS). At least three Russian stations are already operating in Antarctica， part of its effort to challenge the dominance of the American GPS, and new stations are planned for sites like the Russian base, in the shadow of the Orthodox Church of the Holy Trinity.

F)Elsewhere in Antarctica, Russian researchers boast of their recent discovery of a freshwater reserve the size of Lake Ontario after drilling through miles of solid ice. "You can see that we're here to stay，" said Vladimir Cheberdak, 57，chief of the Bellingshausen Station, as he sipped tea under a portrait of Fabian Gottlieb von Bellingshausen, a high-ranking officer in the Imperial Russian Navy who explored the Antarctic coast in 1820.

G)Antarctica's mineral，oil and gas wealth are a longer-term prize. The treaty banning mining here，shielding coveted (令人垂诞的)reserves of iron ore， coal and chromium, comes up for review in 2048. Researchers recently found kimberlite (金伯利岩)deposits hinting at the existence of diamonds. And while assessments vary widely, geologists estimate that Antarctica holds at least 36 billion barrels of oil and natural gas.

H)Beyond the Antarctic treaties， huge obstacles persist to tapping these resources, like drifting icebergs that could jeopardize offshore platforms. Then there is Antarctic's remoteness. with some mineral deposits found in windswept locations on a continent that is larger than Europe and where winter temperatures hover around minus 55 degrees Celsius.

I)But advances in technology might make Antarctica a lot more accessible three decades from now. And even before then, scholars warn, the demand for resources in an energy-hungry world could raise pressure to renegotiate Antarctica's treaties, possibly allowing more commercial endeavours here well before the prohibitions against them expire. The research stations on King George Island offer a glimpse into the long game on this ice-blanketed continent as nations assert themselves, eroding the sway long held by countries like the United States, Britain, Australia and New Zealand.

J) Being stationed in Antarctica involves adapting to life on the planet's driest, windiest and coldest continent, yet each nation manages to make itself at home. Bearded Russian priests offer regular services at the Orthodox church for the 16 or so Russian speakers who spend the winter at the base, largely polar scientists in fields like glaciology and meteorology. Their number climbs to about 40 in the warmer summer months. China has arguably the fastest-growing operations in Antarctica. It opened its fourth station last year and is pressing ahead with plans to build a fifth. It is building its second ice-breaking ship and setting up research drilling operations on an ice dome 13, 422 feet above sea level that is one the planet's coldest places. Chinese officials say the expansion in Antarctica prioritises scientific research, but they also acknowledge that concerns about "resource security" influence their moves.

K)China's newly renovated Great Wall Station on King George Island makes the Russian and Chilean bases here seem outdated. "We do weather monitoring here and other research." (,Ning Xu, 53，the chief of the Chinese base，said over tea during a fierce blizzard (暴风雪) in late November. The large base he leads resembles a snowed-in college campus on holiday break，with the capacity to sleep more than 10 times the 13 people who were staying on through the Antarctic winter. Yong Yu, a Chinese microbiologist, showed off the spacious building, with empty desks under an illustrated timeline detailing the rapid growth of China's Antarctic operations since the 1980s. "We now feel equipped to grow," he said.

L)As some countries expand operations in Antarctica, the United States maintains three, year-.round stations on the continent with more than 1，000 people during the southern hemisphere's summer, including those at the Amundsen-Scott station, built in 1956 at an elevation of 9,301 feet on a plateau at the South Pole. But US researchers quietly complain about budget restraints and having far fewer icebreakers the Russia, limiting the reach of the United States in Antarctica.

M) Scholars warn that Antarctica's political drift could blur the distinction between military and civilian activities long before the continent's treaties come up for renegotiation, especially in parts of Antarctica that are ideal for intercepting (拦截)signals from satellites or retasking satellite systems, potentially enhancing global electronic intelligence operations.

N) Some countries have had a hard time here, Brazil opened a research station in 1984， but it was largely destroyed by a fire that killed two members of the navy in 2012，the same year that a diesel-laden Brazilian barge sank near the base. As if that were not enough, a Brazilian 0130 Hercules military transport plane has remained stranded near the runway of Chile's air base here since it crash-landed in 2014.

O) However, Brazil's stretch of misfortune has created opportunities for China, with a Chinese company winning the $ 100 million contract in 2015 to rebuild the Brazilian station.

P) Amid all the changes, Antarctica maintains its allure. South Korea opened its second Antarctic research base in 2014， describing it as a way to test robots developed by Korean researchers for use in extreme conditions. With Russia's help, Belarus is preparing to build its first Antarctic base. Colombia said this year that it planned to join other South American nations with bases in Antarctica.

Q) "The old days of the Antarctic being dominated by the interests and wishes of white men from European, Australasian and North American states are over，" Said Klaus Dodds, a politics scholar at the University of London who specialises in Antarctica. "The reality is that Antarctica is geopolitically contested."

36.According to Chinese officials, their activities in Antarctica lay greater emphasis on scientific research.

37.Efforts to create one of the world's largest ocean sanctuaries failed because of Russia's obstruction.

38.With several monitoring stations operating in Antarctica, Russia is trying hard to counter America's dominance in the field of worldwide navigational facilities.

39.According to geologists' estimates, Antarctica has enormous reserves of oil and natural gas.

40.It is estimated that Antarctica boasts of the richest reserves of fresh water on earth.

41.The demand for energy resources may compel renegotiation of Antarctica's treaties before their expiration.

42.Many countries are racing against each other to increase their business and strategic influence on Antarctica.

43.Antarctica's harsh natural conditions constitute huge obstacles to the exploitation of its resources.

44.With competition from many countries, Antarctica is no longer dominated by the traditional white nations.

45.American scientists complain about lack of sufficient money and equipment for their expansion in Antarctica.

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TEXT30

The American Workplace Is Broken. Here's How We Can Start Fixing It.

A) Americans are working longer and harder hours than ever before. *83%* of workers say they're stressed about their jobs, nearly 50% say work-related stress is interfering with their sleep, and 60% use their smartphones to check in with work outside of normal working hours ; No wonder only 13% of employees worldwide feel engaged in their occupation.

B) *Glimmers*（少 许 ）of hope, however, are beginning to emerge in this bruising environment: Americans are becoming aware of the toll their jobs take on them, and employers are exploring ways to alleviate the harmful effects of stress and overwork. Yet much more work remains to be done. To call stress an epidemic isn't exaggeration. The 83% of American employees who are stressed about their jobs — up from 73% just a year before — say that poor compensation and an unreasonable workload are their number-one sources of stress. And if you suspected that the workplace had gotten more stressful than it was just a few decades ago, you're right. Stress levels increased 18% for women and 24% for men from 1983 to 2009. Stress is also starting earlier in life, with some data suggesting that today's teens are even more stressed than ^dults.

C) Stress is taking a significant toll on our health, and the collective public health cost may be enormous. Occupational stress increases the risk of heart attack and diabetes, accelerates the aging process, decreases longevity, and contributes to depression and anxiety, among numerous other negative health outcomes. Overall, stress-related health problems account for up to 90*%* of hospital visits, many of them preventable. Your job is "literally killing you，" as *The Washington Post* put it. It's also hurting our relationships. Working parents say they feel stressed, tired, rushed and short on quality time with their children, friends and partners.

D) Seven in 10 workers say they struggle to maintain work-life balance. As technology (and with it, work emails) *seeps*（渗 入 ）into every aspect of our lives, work-life balance has become an almost meaningless term. Add a rapidly changing economy and an uncertain future to this 24/7 connectivity, and you've got a recipe for overwork, according to Phyllis Moen. "There's rising work demand coupled with the insecurity of mergers, takeovers, downsizing and other factors， '' Moen said. "Part of the work-life issue has to talk about uncertainty about the future."

E） These factors have converged to create an increasingly impossible situation with many employees overworking to the point of burnout. It's not only unsustainable for workers, but also for the companies that employ them. Science has shown a clear correlation between high stress levels in workers and *absenteeism* （旷 工)， reduced productivity, disengagement and high turnover. Too many workplace policies effectively prohibit employees from developing a healthy work-life balance by barring them from taking time off，even when they need it most.

F） The U. S. trails far behind every wealthy nation and many developing ones that have family- friendly work policies including paid parental leave, paid sick days and breast-feeding support,according to a 2007 study. The U. S. is also the only advanced economy that does not guarantee workers paid vacation time, and it's one of only two countries in the world that does not offer guaranteed paid maternity leave. But even when employees are given paid time off, workplace norms and expectations that pressure them to overwork often prevent them from taking it. Fulltime employees who do have paid vacation days only use half of them on average.

G） Our modern workplaces also operate based on outdated time constraints. The practice of clocking in for an eight-hour workday is a leftover from the days of the Industrial Revolution, as reflected in the then-popular saying, "Eight hours labor, eight hours recreation, eight hours rest."

H） We've held on to this workday structure — but thanks to our digital devices, many employees never really clock out. Today, the average American spends 8.8 hours at work daily, and the majority of working professionals spend additional hours checking in with work during evenings, weekends and even vacations. The problem isn't the technology itself, but that the technology is being used to create more flexibility for the employer rather than the employee. In a competitive work environment, employers are able to use technology to demand more from their employees rather than motivating workers with flexibility that benefits them.

I） In a study published last year, psychologists coined the term "workplace telepressure[M] to describe an employee's urge to immediately respond to emails and engage in obsessive thoughts about returning an email to one's boss, colleagues or clients. The researchers found that telepressure is a major cause of stress at work, which over time contributes to physical and mental burnout. Of the 300 employees participating in the study, those who experienced high levels of telepressure were more likely to agree with statements assessing burnout, like "I've no energy for going to work in the morning，'' and to report feeling fatigued and unfocused. Telepressure was also correlated with sleeping poorly and missing work.

J) Harvard Business School professor Leslie Perlow explains that when people feel the pressure to be always "on," they find ways to accommodate that pressure, including altering their schedules, work habits and interactions with family and friends. Perlow calls this vicious cycle the "cycle of responsiveness"： Once bosses and colleagues experience an employee's increased responsiveness, they increase their demands on the employee's time. And because a failure to accept these increased demands indicates a lack of commitment to one's work · the employee complies.

K) To address skyrocketing employee stress levels, many companies have implemented workplace wellness programs, partnering with health care providers that have created programs to promote employee health and well-being. Some research does suggest that these programs hold promise. A study of employees at health insurance provider Aetna revealed that roughly one quarter of those taking in-office yoga and mindfulness classes reported a

28% reduction in their stress levels and a 20% improvement in sleep quality. These less-stressed workers gained an average of 62 minutes per week of productivity. While yoga and *meditation* (静 思)are scientifically proven to reduce stress levels, these programs do little to target the root causes of burnout and disengagement. The conditions creating the stress are long hours, unrealistic demands and deadlines, and work-life conflict.

L) Moen and her colleagues may have found the solution. In a 2011 study, she investigated the effects of implementing a Results Only Work Environment (ROWE) on the productivity and well-being of employees at Best Buy's corporate headquarters

M) For the study, 325 employees spent six months taking part in ROWE, while a control group of 334 employees continued with their normal workflow. The ROWE participants were allowed to freely determine when, where and how they worked — the only thing that mattered was that they got the job done. The results were striking. After six months, the employees who participated in ROWE reported reduced work-family conflict and a better sense of control of their time, and they were getting a full hour of extra sleep each night. The employees were less likely to leave their jobs, resulting in reduced turnover. It’s important to note that the increased flexibility didn’t encourage them to work around the clock. “They didn’t work anywhere and all the time — they were better able to manage their work,” Moen said. “Flexibility and control is key，’’ she continued.

36. Workplace norms pressure employees to overwork, deterring them from taking paid time off.

37. The overwhelming majority of employees attribute their stress mainly to low pay and an excessive workload.

38. According to Moen, flexibility gives employees better control over their work and time.

39. Flexibility resulting from the use of digital devices benefits employers instead of employees.

40. Research finds that if employees suffer from high stress, they will be less motivated, less productive and more likely to quit.

41. In-office wellness programs may help reduce stress levels, but they are hardly an ultimate solution to the problem.

42. Health problems caused by stress in the workplace result in huge public health expenses.

43. If employees respond quickly to their job assignments, the employer is likely to demand more from them.

44. With technology everywhere in our life, it has become virtually impossible for most workers to keep a balance between work and life.

45. In America today, even teenagers suffer from stress, and their problem is even more serious than grown-ups'.

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