ENGLISH READING

挑战大学英语考试辅导丛书

四级时文阅读

高科技新视野

北京大学
贾淑梅 编

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Blue Eyes, Big Earplugs: Bad Hearing?

听力的秘密

不仅动物之间的听力有很大的差别，而且不同种族的人的听力也存在着敏感与迟钝的区分。最新研究表明：黑人女子的听力最好，而大耳廓、蓝眼睛的白人男子的听力最差。

For 30 years, evidence has mounted that black people, on average, hear better than whites, and that within both races, women surpass men. A partial explanation of the differences may lie in the abundance in the inner ear of melanin① pigments, which are also found in skin and irises.② Lending credence to that notion, numerous studies have found that people with light eye colors, such as blue, green, and hazel, are more vulnerable to hearing damage than are people with brown or black eyes.

Taking a new look at old data, Julia D. Royster of Environmental Noise Consultants in Raleigh, N. C., finds further reason to believe that eye color matters. She reanalyzed records collected some 20 years ago by her husband, Larry H. Royster, at a large, noisy textile③ plant in North Carolina. She reports that the 21 light-eyed, black workers showed significantly poorer hearing than the 327 dark-eyed, black workers. No comparable difference in hearing loss emerged between light-eyed and dark-eyed whites.

Reasons for the greater susceptibility among light-eyed

blacks remain obscure, but "melanin may have something to do with it," she says.④ Researchers have determined that the inner ear produces extra melanin when stressed by noise. Melanin, however, may both protect and harm hearing. It sometimes mops up harmful molecules called free radicals, but at other times, it contributes to their creation.⑤

Larry Royster, who is at North Carolina State University in Raleigh, also reanalyzed the data he collected in the late 1970s. He offers a new, anatomical⑥ explanation for the hierarchy⑦ of hearing detected among blacks and whites.

From the distributions of earplug sizes used by plant workers, he extrapolates that black women had the narrowest ear canals, black men and white women occupied a middle range, and white males had the widest canals.⑧ Since hearing ability follows the opposite pattern — black women having the best hearing and white men the worst — ear-canal size might correlate with "big differences in [potentially damaging] sound levels at the eardrums" and, consequently, in hearing loss, Royster says.⑨

SCIENCE NEWS, OCTOBER 31, 1998

Notes 注释

①melanin:黑色素

②这些差别的部分原因,在于内耳中所含黑色素的不同,皮肤和虹膜中也存在着这样的黑色素。

③textile:纺织品

④尽管浅色眼睛的黑人听力更容易受损害的原因仍不清楚,但是"黑色素或许与这有关,"她说。

⑤它有时会消灭这些被称为自由基的有害分子,但有时也会有助

于这些有害分子的形成。

⑥anatomical:解剖

⑦hierarchy:等级

⑧根据纺织工人使用的耳塞大小,他推测:黑人女子的耳管最窄,黑人男子与白人女子有中等宽度的耳管,而白人男子的耳管最宽。

⑨Royster 说,由于听力的敏锐性与耳管的宽度成反比——这可能与不同耳管引起的声音损失存在某种联系——从而导致了黑人女子听力最好而白人男子听力最差的现象。

Reading Comprehension 阅读理解

1. According to the passage, who has the best hearing?
   A. A man with black eyes.
   B. A woman with hazel eyes and narrow ear canals.
   C. A black woman.
   D. A black woman with brown eyes.
2. Which of the following can be implied from the passage?
   A. Light-eyed, white workers showed significantly poorer hearing than dark-eyed, white workers.
   B. Melanin can neither protect nor harm hearing.
   C. Roster estimates that black women had the narrowest ear canals.
   D. Roster has proved that black women had the narrowest ear canals.

Keys for Reading Comprehension 阅读理解答案

1.D 2.C

New Element Leaves Lightweights Behind

最重的元素

一种被寻找了很久的元素终于在俄罗斯的实验室中出现了！它的原子核中史无前例地塞满了 114 个质子，其存活寿命长达 30 秒，是地道的、居于稳定性岛屿上的超重原子核。

A long-sought new element has apparently sprung into existence in a Russian laboratory. Heavier than any previously known element, it crams an unprecedented 114 protons into its nucleus.① The real excitement, however, say nuclear physicists and chemists, is that it lasted 30 seconds before breaking down into lighter elements.

Bucking② the trend toward briefer lives for increasingly heavy nuclei, the new element lasts 100, 000 times longer than number 112, the last new element found. The creators of element 114 believe they have finally set foot on the so-called island of stability, a postulated region of atomic properties populated by extraordinarily long-lived superheavy nuclei.③

"Sure, they've found a new element and that's important, but what's really important is the island," says Albert Ghiorso of Lawrence Berkeley(Calif.)National Laboratory(LBNL).

For 30 years, theorists have predicted the existence of this island—a kind of Shangri-La where exotic elements stick around long enough to allow exhaustive studies of their nuclear

behavior and chemistry. Researchers anticipate that the elements may display unusual properties.

Scientists from the Joint Institute for Nuclear Research in Dubna near Moscow and Lawrence Livermore(Calif.)National Laboratory collaborated to create the new element. In a prolonged experiment that produced just a single atom, the Russian scientists bombarded④ a film of plutonium⑤-244, supplied by Livermore, with a beam of calcium-48 atoms for 40 days, says Dubna's Yuri Ts. Oganessian. They completed the work at the end of December 1998. A report of the find appeared Jan. 19 on SCIENCE'S online news service.

The atom signaled its presence by disintegrating into lighter and lighter elements, from atomic number 112 to 110 to 108 and so on.⑥ Livermore's Kent Moody says his team's data analysis, completed Monday, identifies element 114"to greater than a 99 percent probability."

Although the claim has yet to undergo peer review for publication, it's being well received in the heavy-element field. "The more we hear, the better it sounds,"says Kenneth E. Gregorich, head of a LBNL team gearing up to rejoin the superheavy-element hunt next fall.

During more than a half-century of making increasingly proton-laden nuclei, scientists have found that such nuclei generally decay sooner than lighter ones. Repulsions between the many positively charged protons shatter the nucleus.⑦

However, nuclei also contain uncharged neutrons, which can arrange themselves among the protons to make nuclei more durable than would otherwise be expected.⑧ Theorists have long suspected that element 114 would show remarkable nuclear stability.

Oganessian says he is confident that he and his colleagues have reached the shore of the long-sought island. Not only did

the purported 114 atom last a long time, but certain isotopes in the decay chain, which also had never been seen before, had extraordinary life spans.⑨ For instance, isotopes of elements 112 and 108 in the decay chain lasted 15 minutes and 17 minutes, respectively, before disintegrating. Isotopes of an element have its allotted number of protons but varying numbers of neutrons.

The difficulty of identifying these novel decay products makes it hard to prove unequivocally that element 114 was created, says Sigurd Hofmann of GSI, the German center for heavy-ion research in Darmstadt. Further experiments at GSI, Dubna, and elsewhere—including perhaps a repeat of the recent Dubna experiment—should help settle any doubts about the 114 claim, he says.

With a beachhead on the island established, Oganessian calls for forays inland. "We have to go now for more heavy isotopes," such as 116, he says.⑩

SCIENCE NEWS, FEBRUARY 6, 1999

Notes 注释

①一种寻找了很久的新元素突然在俄罗斯的实验室中出现了。它比过去已知的任何一种元素都重，原子核中史无前例地塞满了 114 个质子。

②buck：违背，反抗

③元素 114 的发现者声称他们终于登上了所谓的稳定性的岛屿，这是一个设想中的由具有超重长寿命原子核的元素居住的岛屿。

④bombard：(以一高速粒子)撞击(原子等)

⑤plutonium：环

⑥这个原子通过衰变成为越来越轻的元素以示它的存在，从原子

数 112 到 110 到 108，依此类推。

⑦半个世纪以来，在制造包含质子数越来越多的原子核的过程中，科学家们发现包含质子数多的原子核通常要比包含质子数少的原子核衰变得快。因为太多正电子的排斥作用会使原子核猛然间裂成碎片。

⑧然而原子核中也包括不带电的中子，为了使原子核有更长的寿命，它们选择最佳方式将自己安排在质子中间。

⑨不仅被称为 114 的原子存活了较长时间，而且其衰退链上的一些以前从未见过的同位素也有不寻常的寿命。

⑩随着重原子岛屿上滩头阵地的建立，Oganessian 呼吁科学家们来袭击它的内陆。“我们现在要找更重的同位素，”像 116，他说。

Reading Comprehension　阅读理解

1. The new found isotopes of element 112 have a(an)_____ life span than the one found earlier.

   A. Longer.　　B. Shorter.　　C. Equal.

   D. None of the above.

2. Which of the following is not true about element 114?

   A. We have completely identifies its presence.

   B. It has a relatively long life span.

   C. We have not seen it directly.

   D. It was found in a Russian Laboratory.

Keys for Reading Comprehension　阅读理解答案

1. A　　2. A

The Brain's Humor Zone

大脑幽默区

根据加拿大科学家的最新发现，人类的确有幽默细胞。一个人是否具有幽默感并非全由性格所致，更多地取决于脑细胞的结构。

Just in time for April Fool's Day, researchers have identified a brain area that separates people who savor the wordplay of Dorothy Parker and Woody Allen from those who guffaw only at the slapstick① antics of the Three Stooges. It's what makes some people smile at this sign in a Hong Kong tailor's shop: "Please have a fit upstairs."

There's a 2-inch-by-3-inch patch of tissue in the brain's right frontal lobe that seems to be the key, according to Donald Stuss and Prathiba Shammi, two neuropsychologists who reported their find in the April issue of the journal *Brain*.② After examining 21 people with small lesions in various brain parts as a result of strokes and other brain injuries, Stuss and Shammi asked them to rate the humor in sentences such as the one about the tailor.③ They also asked their subjects to select the funniest punch lines for jokes, some of which used plays on words, while others featured pratfalls over rakes. People with right frontal lobe damage fell only for the pratfalls, while those with undamaged lobes laughed at pratfalls and puns alike.

The discovery is no laughing matter, says Stuss, since it also

holds clues about how the brain solves problems and where it forms an individual's sense of self.④ Humor calls on the ability to see a situation from a different perspective—"a fit"has various meanings, for instance—and making that switch calls for an awareness of where one stands in the world.

U.S.NEWS & WORLD REPORT, APRIL 12, 1999

Notes 注释

①slapstick:滑稽剧

②根据两个神经生理学家 Stuss 和 Shammi 在四月份的"大脑"杂志上公布的结论:在脑的右额页上有一块 2 到 3 英寸的组织看起来是问题的关键。

③在对 21 个大脑不同部位受过打击或其他伤害而有轻微脑损伤的人检查后,Stuss 和 Shammi 让他们说出对句子幽默程度的感觉,例如上面裁缝店的例子。

④Stuss 说,这个发现并不可笑,因为它同时也为弄清大脑如何解决问题,和每个人于何处形成自己的感觉提供了线索。

Reading Comprehension 阅读理解

1. The discovery of the brain's humor zone _____.
   A. is a laughing matter
   B. lies in the brain's left lobe
   C. may tell us how the brain solves problem
   D. gives us clues about where the brain forms an individual's sense of self

Keys for Reading Comprehension 阅读理解答案

1. D

Depleting the Earth

枯竭的地球

几乎每个人都知道技术已经严重破坏了我们赖以生存的地球，然而，这种感觉仅仅限于一种认识。至于这种危害究竟达到何种程度，却众说纷纭，但总的看法仍旧是天下太平，似乎地球病人膏肓是几千年以后的事。这种感觉与下面的事实形成了一种鲜明的对比：自70年代以来的二十年间，30%的自然资源已被破坏；消费的压力增长了一倍；昔日杳无人迹的森林、淡水资源和人类赖以生存的近海资源如今也都遭到了严重的破坏。生态保护已经时不我待。

Humans have destroyed more than 30 percent of the natural world since 1970 with serious depletion of the forest, freshwater, and marine ecosystems on which life depends.① Consumption pressure from increasing affluence has doubled in the past 25 years and continues to accelerate, according to a groundbreaking report from the World Wide Fund for Nature (WWF), the New Economics Foundation, and the World Conservation Monitoring Center at Cambridge.

The "Living Planet Report" says that the acceleration in environmental destruction shows that politicians who have been paying lip service to② sustainable development have done little to promote it. "Time is running out for us to change the way we live if we are to leave future generations a living planet," comments Nick Mabey, WWF's economic policy officer. "We knew

it was bad, but until we did this report, we did not realize how bad."

One of the most serious problems whose extent is revealed for the first time is the depletion of freshwater resources, with half of the accessible supplies being used by humans—double the amount in 1960.③ The rate of decline of freshwater ecosystems is running at 6 percent a year, threatening to dry up many wetlands and push the species of those habitats to extinction. The report says that governments should increase the efficiency of their water use and stop wasteful irrigation schemes.

Carbon dioxide emissions have doubled in the same period and, being far in excess of the natural world's ability to absorb them, are accelerating global warming. Global consumption of wood and paper has increased by two thirds, and most forests are managed unsustainably. During the past 38 years, marine-fish consumption has more than doubled, and most of the world's fish resources are either fully exploited or in decline.

Although the report says that a growing population is part of the problem, increased consumption has been the main problem.④ The average North American of Japanese consumes 10 times as much of the world's resources as the average Bangladeshi. Japan and Bangladesh have the same populations but have a vastly different effect on ecosystems.

The average North American consumes five times as much as an African and three times as much as an Asian. However, in total, Asia takes more of the Earth's resources because there are 3.2 billion Asians compared with only about 300 million North Americans.

The people of Taiwan, the U.S., and Singapore are singled out as the world's most voracious⑤ consumers, responsible for depleting the Earth's resources faster than other countries. But some developing countries also are depleting their resources at an alarming rate.