What's That Smell?
聞味辨疾

英聽教學

We're discovering all sorts of new ways to sniff out disease.

我們正嘗試以各種新方法嗅出疾病。

好個狗鼻為人揪病
神乎其技持續發功

英文 / Leila Luo　圖 / 123RF

Recently, dogs were taught in a study at the University of Helsinki to recognize the odor of the COVID-19 disease caused by the novel coronavirus. In only a few weeks, the first dogs were able to detect the disease almost as reliably as a standard PCR test. Next, the Finnish scientists will prepare for a randomized, double-blind study in which the dogs will smell a larger number of patient samples.

近日在赫爾辛基大學的一項研究中，訓練狗狗來辨識新冠病毒引起的 COVID-19 特殊氣味。短短數週內，第一批受訓狗狗就能準確地嗅出疾病氣味，精確度直逼 PCR 試劑的標準。緊接著芬蘭科學家展開隨機、雙盲檢測研究計畫，讓受試犬接觸更多疾患者的氣味樣本。

Dogs can also detect cancers, malaria, and a chemical called isoprene which is helpful for informing diabetics about their blood sugar. Mice and ferrets have also been trained for disease detection. In one study, mice were trained to detect avian influenza in fecal samples from infected ducks. In another study, ferrets were also trained to detect bird flu.

除此之外，藉由狗的嗅覺還能嗅出癌症、瘧疾等疾病；若狗狗嗅出了化學物質異戊二烯的氣味，便能警示糖尿病患者注意血糖的狀態。除了狗狗，老鼠與雪貂等嗅覺靈敏的動物，也曾在研究中接受疾病檢測訓練。在研究禽流感的實驗中，就曾藉由染病鴨的糞便檢體樣本，訓練老鼠檢測禽流感；在另一研究中，雪貂也接受了以嗅覺檢測禽流感的訓練。

reliably（adv.）可靠地　　standard（a.）標準的　　randomized（a.）隨機化的　　sample（n.）樣本　　flu（n.）流行性感冒
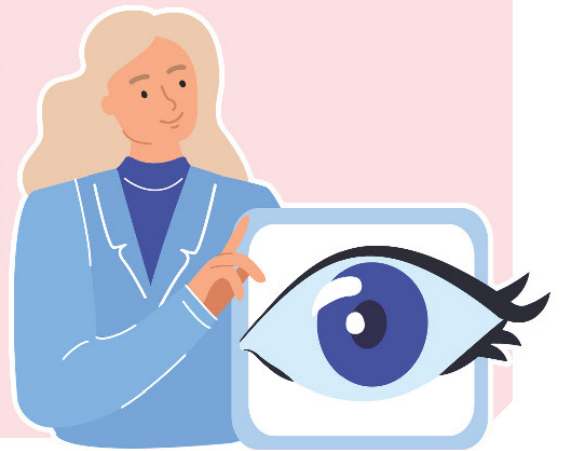
心臟病檢驗新方法
解讀眼底心事

英文 / Andrew Edmunds　圖 / 123RF

Researchers at the University of Leeds recently created an algorithm that uses routine eye scans to identify heart attack risk with 70 to 80 percent accuracy. The algorithm looks for any changes to the tiny blood vessels in the retina. Retinal scans are inexpensive compared to the typical tests used to screen for heart disease.

英國里茲大學的研究者近日發明一套演算法，在例行的眼部掃描中，捕捉視網膜微血管的細微變化，藉此辨識心臟病發作的風險，準確率約達 70 至 80%。相較於心臟病的典型檢查，視網膜掃描的費用更為低廉。

沈船堅忍號重見天日
冰封百餘載完好依舊

英文 / Andrew Edmunds　圖 / 123RF

After being lost for 107 years, one of the world's most famous shipwrecks was recently found off the coast of Antarctica over three kilometers below the Weddell Sea. The wooden ship is incredibly well preserved, with not a single plank eaten by parasites. The name 'Endurance' can still be seen across the stern.

消失了 107 年，世界著名沉船之一的堅忍號（Endurance），近日終於在南極洲沿海、威德爾海下方 3 公里處尋獲。這艘木造船隻的保存狀態好得令人驚奇，沒有一塊木板遭蟲蛀蝕，船尾刻著的船名 Endurance，仍清晰可見。

algorithm（n.）演算法　routine（a.）常規的　vessel（n.）血管　incredibly（adv.）難以置信地　preserve（v.）保存

神鼻鎖定帕金森
e-nose 開創病檢新技術

英文 / Leila Luo　圖 / 123RF

Retired nurse Joy Milne has the extremely rare ability to smell Parkinson's disease in other people. She realized this only after detecting a new "musky, oily odor" on her husband, who was diagnosed with Parkinson's. Years later, she attended a support group for Parkinson's patients and found that everyone there had the same odor.

具備極其罕見嗅覺能力的退休護士喬伊・米爾恩，能嗅出帕金森氏症患者身上的特殊氣味。她從丈夫身上聞到一股類似麝香、油膩味道，不久丈夫被診斷出罹患帕金森氏症，這才知道自己天賦異稟。多年後，在她參加的一個帕金森氏症患者互助會中，驚覺所有參加者都有相同的體臭。

In 2018, Parkinson's researchers worked with her to test her olfactory abilities. Their tests revealed she was 98% accurate. After further research, scientists figured out that Milne could smell a compound in the patients' sebum, or skin oil. A known symptom of Parkinson's disease is an excessive production of sebum. Now, thanks to Milne, this unique compound can be used as a biomarker to detect Parkinson's disease earlier.

2018 年，帕金森氏症研究人員對米爾恩進行嗅覺能力測試，結果顯示她的嗅覺診斷精確度竟高達 98%。經科學家們進一步研究，發現米爾恩能嗅出患者皮脂中的一種化合物，該物質的生成，是因帕金森氏症患者皮脂過度分泌的病徵。多虧米爾恩的特異功能，現在該化合物可作為早期檢測帕金森氏症的生物標記。

retired (a.) 退休的　　odor (n.) 臭味　　attend (v.) 出席　　olfactory (a.) 嗅覺的　　compound (n.) 化合物

Why can't we build a machine that can smell for diseases the way that animals do? Unfortunately, it isn't that simple. Scientists don't yet fully understand how animals can smell the things they can, or what specific compounds they can smell in diseases. That's why the discovery of Joy Milne's super smelling ability sparked such enthusiasm in the scientific and medical communities.

為何我們無法仿效動物的嗅覺，研發出類似的疾病檢測裝置？很不幸，事情沒有想像中的簡單。至今科學家尚未全然掌握動物的嗅覺機制，也不清楚牠們究竟在人體聞到哪種疾病產生的化合物。因此喬伊・米爾恩的超級嗅覺一舉振奮了科學與醫學界。

Thanks to ongoing research conducted since Milne's abilities were first discovered, there is now an artificially intelligent olfactory system that may get us one step closer to sniffing out Parkinson's disease early: e-nose. Compared to the equipment normally used to analyze odor compounds, the new device is fast, easy to use, portable, and inexpensive, making it suitable for point-of-care testing.

自米爾恩的才能被發掘後，相關的研究持續不斷地進行，現今有種 AI 嗅覺系統 e-nose，讓我們與及早察覺罹患帕金森氏症的距離，又拉近一些。相較於其他常用的化合物氣味分析設備，e-nose 具有迅速、操作簡易、便攜性及價格便宜的優勢，非常適合用於定點照護檢測 (POCT)。

excessive (a.) 過度的　specific (a.) 特定的、具體的　enthusiasm (n.) 熱忱　equipment (n.) 器材　analyze (v.) 分析

1. How are dogs helpful with diseases according to page two?
a. They are able to smell bird flu in fecal samples.
b. They are capable of identifying sick people.
c. They can be trained to read novels about diseases.
d. They help blind patients during disease studies.

2. What is true about the eye scans on page three?
a. They are ordinary and easily done procedures.
b. They are conducted at the University of Leeds.
c. They are 70 to 80 percent accurate.
d. They are typically used to screen for heart disease.

3. What is unique about the ship Endurance from page three?
a. It is 107 years old.
b. Its original condition has been well kept.
c. Its crew survived by eating parasites.
d. Captain Weddell was a stern man.

4. Which word means a change in the body or mind which indicates that an illness or disease is present?
a. biomarker
b. compound
c. sebum
d. symptom

5. What does spark mean as it was used on page five?
a. a small piece of burning material from a fire
b. a short, bright flash of electricity
c. to add interest, liveliness, or flavor to something
d. to start a fire by rubbing or hitting two hard objects together

6. Portable is to inconvenient as ___.
a. detect is to detective
b. enthusiasm is to interest
c. identify is to inform
d. specific is to ordinary

Cloze Test A

Eyes ___ very similar to cameras. Like a camera, your eyes take pictures of ___ world around you. Then, these pictures are sent ___ your brain and your brain makes sense of what you are seeing.

Cloze Test B

The first ships used oars ___ the wind to make them move. For many thousands of years, boats ___ made ___ wood. When ships sink to the bottom of the sea, they are called shipwrecks.

1.b　2.a　3.b　4.d　5.c　6.d

1. 查閱第 2 版文章，狗能嗅出疾病的氣味，以辨識人是否罹患疾病。答案為 (b)。

2. 第 3 版第 1 則報導中的 routine (a. 常規的)，指的是一般、常態性的眼部掃描檢查。選項 (c) 為陷阱，有 70 至 80% 準確率的是演算法，並非眼部掃描。

3. 第 3 版第 2 則報導提到，堅忍號船骸的保存狀態好得令人驚奇。答案為 (b)。

4. symptom(n. 徵狀)，皮脂分泌過多是帕金森氏症的病徵之一。其他選項，(a)n. 生物標記物、(b)n. 化合物、(c)n. 皮脂。

5. 所有選項皆為 spark 的字義。但在第 5 版文章中，spark 用作動詞，為「激勵、鼓舞」的意思。因此答案為 (c)。

6. 觀察詞彙關係，portable (a. 輕便的、便攜的) 與 inconvenient(a. 不便的) 互為相反詞，恰如 (d)specific(a. 特定的) 與 ordinary(a. 一般的)。

Cloze Test A

1.are　2.the　3.to
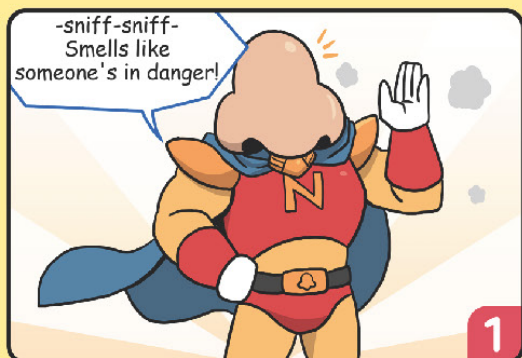眼睛的構造和成像原理與相機非常相似。眼睛會將你所見的周遭世界，如拍照般捕捉下來。接著，再將這些訊息傳送到大腦進行解讀，於是你眼中所見的景像就此成形。

Cloze Test B

1.or　2.were　3.of
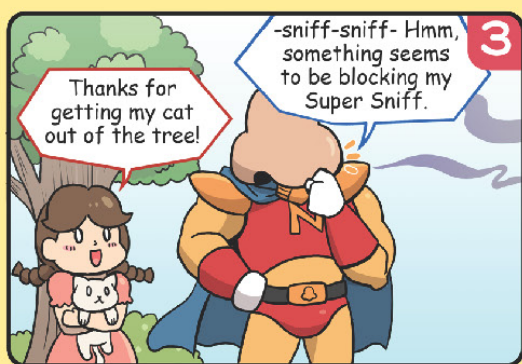早期的船隻會以船槳或風為動力。世界各地的船隻，有數千年多以木頭製造。當船沉入海底，即會成為船骸。

英雄剋星

脚本 / Leila Luo　漫畫 / 瀚昇

1. -sniff-sniff- Smells like someone's in danger!
（嗅嗅）這像是有人身陷危險的味道！

2. Thanks, Nose! You've saved us!
You're welcome! But I smell someone else who needs my help...
超鼻英雄，謝謝您救了我們！
不客氣！我還聞到其他需要幫助的人……

3. Thanks for getting my cat out of the tree!
-sniff-sniff- Hmm, something seems to be blocking my Super Sniff.
謝謝你救了我的貓！
（嗅嗅）嗯，似乎有股力量正干擾我的超級嗅覺……

4. Oh, no! It's my greatest enemy... the garbage man.
喔，天啊
是我的宿敵……垃圾怪客！

The Rest is History
以假亂真玩具弄人
尼斯湖水怪照騙一甲子

英文 / Andrew Edmunds　圖 / 123RF

If you've only seen one photo of the Loch Ness Monster, you've probably seen the "surgeon's photo" taken by English surgeon Robert Kenneth Wilson. The photo was published in the Daily Mail newspaper on the 21st of April 1934. Sixty years later, Christopher Spurling verified that he and his stepdad created the photo as a hoax.

如果你只看過一張尼斯湖水怪的照片，那你看到的，很可能是出自英國醫生羅伯特・肯尼斯・威森拍攝的「外科醫生的照片」。1934 年 4 月 21 日，該相片刊登於《每日郵報》；60 年後，克里斯托弗・斯普林證實這張水怪照片是他與繼父共同製作的騙局。

sniff (v/n.) 嗅　　block (v.) 阻礙　　surgeon (n.) 外科醫生　　stepdad (n.) 繼父　　hoax (n.) 騙局