

文訊

WORD POWER

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The twenty-ninth of October 2012 was a full moon night. But no one in New York could see the enormous bright moon through the thick clouds. The barometer dropped to a record low. Strong gusts of 90 miles per hour were blowing from the ocean. A huge wall of water as high as 14 feet rushed over the edge of Lower Manhattan. Torrential downpours, accompanied by omnipresent ghostly shrieks of wind, slashed across the entire New Jersey Coast. Hurricane Sandy was making landfall.

Meteorologists and government officials stood baffled, trying hard to figure out how serious the situation could be. By the time they realised that a monstrous storm came rolling in town, it was too late to issue warnings. Unprecedented in force and size, Sandy brought the Gotham City and many parts of New Jersey to their knees: power poles were ripped off; public utilities collapsed; tens of thousands of buildings were damaged; the Manhattan Subway was inundated with water; and scores of people died.



As soon as the storm dissipated, a series of unsettling questions came in. Was Sandy a freak event or a prelude to more disasters in the future? Should people retreat from the coast? Could we fence off our cities from the sea? These are not only questions for New Yorkers, but for all those living along coastal regions. Although scientists do not see eye to eye on how often we will be hit by a super hurricane, there is one thing they agree: with global warming on the rise, extreme weather conditions are more likely to happen. The Earth and its oceans are heating up due to human emissions of greenhouse gases, and rising atmospheric temperatures portend an increase of violent storms. Worse still, when warm currents reach the poles, glaciers melt, causing the sea level to rise worldwide, and putting coastal cities at greater risk.

Sandy was a wake-up call for human beings to get better prepared, and to engineer a solution to protect vulnerable coastal regions against storm surges. Who could the New Yorkers turn to? With much of their land below the sea level, the Dutch, who always dream of keeping their feet dry, know better than anyone how to win the war against flooding.

In the winter of 1953, a storm as mighty as Sandy blew from the North Sea, killing thousands of people and destroying

countless homes in the Netherlands. In the wake of the disaster, a massive flood control programme was put in place. In addition to their usual reinforced system of dams and dykes, the Dutch added what they hoped would be the superlative weapon against deluge. Gigantic concrete walls were built at the estuaries to keep the water out, plus two colossal gates designed to swing shut when storm surges came through the Rotterdam Harbour. To the southwest of the Harbour, a 5.5-mile-long surge barrier with numerous doors was erected, ready to close at the push of a button.

However, things did not work out the way the Dutch wished. The country's ecosystem had been upset. Behind the surge barriers, large stagnant pools of water are being plagued by alarming noxious algae growth. Even with the doors of the giant barriers open, the permanent concrete walls reduce the flow of the tides, preventing the precious sediments from flowing into the river mouths. As a result, the sandbars, oyster beds and wetland at the estuaries are disappearing, stripping away the natural flood protection they used to provide. In the 1990s, several powerful storms attacked the Netherlands, and the widespread damage forced the country to rethink its flood control strategy.

How did the Dutch scientists and ecologists respond? "Intervene less. Rivers are meant to flood, and we should let the water in," they said. The Dutch Government then introduced a number of new measures, including buying out owners of farmland at the most flood-prone locations, so that flood water would simply flow onto the empty land without damaging homes and businesses. The Dutch also built walled and tiered public plazas which can take in a large volume of water when it rains or floods. They even reshaped the landscape of a city by flattening part of a peninsula so that river water can flow more freely.

Are the Dutch, big believers in big structures to keep flooding at bay, making a tactical retreat? No. After centuries of performing alchemy, turning water into land, they finally realised that they should return land to the river, and the only way out is to adopt an approach that can embrace both natural defences and water. Flooding can hardly be a friend of human beings. Unfortunately, we have made this enemy stronger and stronger by our own fault. Is it time for us to carefully chart our next step ahead in this endless struggle with nature?





一千六百多年前，一個老僧披着袈裟，手持木杖，在烈日下蹣跚前行，一步一步走過綿延無垠的荒漠。老僧名法顯，東晉人，此行是到西域求經。據說他路過的地方就是羅布泊。羅布泊一片蒼茫，杳無人煙，又稱“死亡之海”，怪不得《法顯傳》記載：“沙河中多有惡鬼熱風，遇則皆死，無一全者。上無飛鳥，下無走獸。徧望極目，欲求度處，則莫知所擬。唯以死人枯骨為標幟耳。”

羅布泊，新疆語是“百川匯聚的湖泊”之意，位於新疆塔里木盆地東緣，曾是大漠中的綠洲。

如今可見的盡是陡崖、鹽灘、奇形怪狀的風蝕小丘，天氣變幻莫測，不時刮起陣陣沙暴，人在其中，恍如身處鬼域。多年來，為掀開羅布泊的神秘面紗，科學家試圖穿越死亡之海，但不少壯志未酬，魂斷滾滾黃沙下。



死亡之海的真正面目好像永遠看不清楚。研究員考察後，仍無法掌握羅布泊的確實水域。依文獻所載，羅布泊盈滿時，遠望宛如人耳，但形狀迭變，位置飄忽無定，因此有地理學家認為羅布泊是會移動的。據解釋，羅布泊四周黃沙蔽天，流入湖泊的河水帶有大量泥沙，泥沙入湖後沉積起來，湖口的底部升高，使湖盆高低不平，高處的湖水便向較低處流去。多年後，升高的湖底遭風蝕後再降低，湖水又回流，周而復始，如幽靈般游移，長達千多年之久。

不過，有科學家質疑這個論點，指羅布泊的湖水一直在湖盆內流動，從未流到湖外去，談不上游移。湖泊游移，只是千百年來天氣轉變令湖水漲落所致，也是羅布泊與鄰近湖泊彼此盈縮，湖水互為

消長所產生的錯覺。科學家各持己見，羅布泊是否游移的百年之謎，仍待追查。

可惜在謎團解開前，羅布泊早在上世紀七十年代乾涸。據《漢書》載，古時的羅布泊湖水豐盈，面積遼闊，“廣袤三百里”。到了清代，湖面縮小至“東西二百里，南北百餘里，冬夏不盈不縮”，清末更縮減至“東西長八九十里”。鬼湖的水量為何大幅減少？探究其因，人類是罪魁禍首。羅布泊的水源來自塔里木河、孔雀河和疏勒河。自西漢中葉起，人們在這些河流的中上游地區大興屯田，引水灌溉，流入湖泊的水量逐漸減少，特別是在五六十年前，塔里木河兩岸人口激增，農民為了開荒造田而改變河道，導致斷流，羅布泊就這樣消失了。

科學家在羅布泊西北面不遠處發現樓蘭古城遺址。那裏曾是通往西域的交通樞紐、古絲綢之路上的一顆明珠。全盛時期，古城商鋪林立，佛寺香火繚繞，東來西往的客商、僧侶絡繹不絕。載着茶葉、珠寶、絲綢、葡萄的駱駝隊在街道上隨處可見。然而，古城突然消失。原來樓蘭與羅布泊唇齒相依。羅布泊湖水北移，使古城水源枯竭，無法種植畜牧。到了大約公元四世紀，樓蘭人終於敵不過大自然，不得不棄城別走，古城從此湮沒在黃沙下。

星移斗轉，這座繁華古城如今只剩下殘垣斷瓦，本是湖水滿盛的羅布泊亦變成茫茫戈壁。不少考古學家、科學家穿越大漠，來到這塊幽靈之地探究古城與鬼湖消失之謎。在浩渺穹蒼下，他們冒着撲面風沙，採土探地，天朗氣清時會稍稍停下來，遠眺大漠琥珀色的晚霞從天邊退去，仰望點點繁星在澄明夜空閃動。在古城遺址挖到爛壺破樽時，會想起昔日商旅在客棧觥籌交錯、高談闊論的情景。在街道漫行，聽到隨風滾動的沙礫簌簌作響，又好像回到從前，看到商隊浩浩蕩蕩走過，伴着陣陣清脆的駝鈴聲。

天高地迥，覺宇宙之無窮。

王勃《秋日登洪府滕王閣餞別序》

文言之文

今年六月，公務員事務局法定語文事務部假香港中央圖書館演講廳舉行專題講座。香港中文大學中國語言及文學系高級講師洪若震博士應邀主講，題為“文言之文”，探討文言在現代應用文中的體現。

何謂文言文？洪博士表示，文言文是在先秦兩漢的口語基礎上形成的書面語，以及後代作家模仿這種書面語寫作的文體。為何稱之為文言文？孔子曰：“言之無文，行而不遠”，意思是沒有文采的文章難以流傳久遠。換言之，文者飾也，文言文指經過修飾的語言。

文言文如何產生？洪博士指周朝是中國古典文明的全盛時期。周人尚文，着重禮儀，不僅服飾儀容講求得體，語言也要修飾，以顯文化素養。春秋時期，有識之士皆“微婉其辭，隱晦其說”，一言一語婉轉謙敬，“自卑而尊人”，力求合乎周禮。

談到文言文與現代公文的关系，洪博士認為文言公文有既定格式，且字辭精鍊，較白話文簡便。不過，現今不少人撰擬公文時，只懂套用文言公文的格式和用語，對於背後的文化和原則卻不明其理，故常常誤用，鬧出笑話。至於如何正確運用，須注意發文者和受文者的關係，對內、外、上、下的公文，使用的格式、文辭各異。

舉例來說，對外公文用辭要客氣有禮，格式亦有嚴格要求。文言書函常用“抬頭”，以表恭敬。“抬頭”有多種形式，須接受文人或與其有關的人和事適當使用。對方如為尊長，應用單抬，即另行高出一格書寫。古代提到皇帝須用雙抬，如觸及至高無上的天則用三抬。現代公文通常用平抬，即換行頂格書寫以示敬意。不過，抬頭格式往往令文字參差不齊，故另一方法是在對方名字前留一個字的空白位，名為“挪抬”。此外，內文如提到自己，一般用側行小寫，以示謙卑。

洪博士表示，稱謂有尊卑之分，要注意用法。古代臣子尊稱皇帝為“陛下”，“陛”指宮殿的台階，“陛下”指台階下的侍從。這稱謂源自“因卑達尊”的概念，即言談中基於禮貌，提到對方時，刻意稱呼其近

侍隨從，以表示不敢當面進言，由位階較低的侍從轉告。此外，古代文人有名有字，名與字的意義互相呼應，例如北宋詞人蘇東坡本名蘇軾，字子瞻。他的字源於《左傳》：“登軾而望”。“軾”指車廂前橫桿，可用來憑依望遠，“瞻”正是前望的意思。名與字不可亂用，蘇東坡的長輩稱他為“軾”，他對長輩也須以名自稱。平輩之間一般以字相稱，自稱則仍然用名。

除了格式和稱謂，洪博士指行文也須注意字詞運用。例如“罄竹難書”語帶貶意，不可用以褒揚別人。這成語出自“罄南山之竹，書罪未窮”（《舊唐書·李密傳》）一句，原指隋煬帝罪行滔天，即使砍盡南山竹子來造成竹簡也寫不完。選詞用字要恪守“內、外、上、下”原則。比方“敬啓”二字常見於書信，但切記不可在信封寫“某某先生敬啓”，因啓者開也，囑咐收信人恭敬地開啓信件，極為無禮。不過，在書信內文首尾使用“敬啓”則合乎禮儀，“啓”字這裏解作開口稟報，“敬啓”便是恭敬地開口稟報的意思。另外，向別人查詢不可用“垂詢”。“垂”解作伏、俯，自稱降低身分向下詢問，實屬不恭，應改為“奉詢”。

洪博士表示，一般人認為文言較白話文雅，但時移世易，現代公文過於文雅，或會有礙理解。不過，洪博士提出，公文旨在傳遞訊息，行文宜簡不宜繁，文言用語有時的確較白話簡潔，例如“請通知這個系的教師詳細列出這門課的參考書目，直接交給這個系的辦公室”可改寫為“請教師詳列該科參考書目，逕送該系辦公室”。

最後談到文言與白話之爭，洪博士表示，現今仍有很多人褒文言，貶白話，以為文言文必定較白話文工整簡練，但事實並不盡然。他指出，文言文不乏通俗冗贅之作，言簡意賅的白話文章比比皆是。至於何者較優，洪博士認為視乎如何運用而定。

洪博士從事中國語文教育工作多年，教學經驗豐富，去年更獲香港中文大學頒發中國語言及文學系教師教學表現優異獎。洪博士專研古文字學、古代文獻和古典文學，著作有《生鬼文言文》系列，並在報章撰寫《漢字源流》、《古文新語》、《字詞漫談》等專欄。

以淺而知深，察近而知遠。
《黃帝內經·素問》



“What did you find, Molly?” A husky voice bellowed.

A slim, bespectacled woman wearing a white lab coat swivelled her chair around, and raised her eyebrows at a strong-built man whose forehead was covered with wrinkles.

“Don’t shout, John,” the woman answered back. “We are getting there. Give me some more time.”

“Two more days. Okay?”



Molly didn’t say a word. Knowing that it was a “yes” from her, Detective John strode out of the laboratory.

The telephone rang.

“The fibre collected from the hair on the back of the victim’s head is wool,” said Gregory,

Molly’s assistant, on the other end of the phone.

“Was it torn from his own clothes?” she asked.

“No. It doesn’t match the fabrics of what he was wearing. A bigger strip was found in the beard, the same as the one in his hair. I’ve sent you an image.”

Gripping her phone in one hand, Molly punched a few keys on the keyboard, and a magnified image of a piece of fabric came into view. She furrowed her brow when a stitched red “C” and an illegible, broken letter appeared on the screen.

“The fabric was probably torn from a scarf,” said Gregory, “I guess it was the murder weapon, as some tiny traces of the same wool fabric were found around the strangle marks on the man’s neck. The scarf was hand-knitted or crocheted. Look at the floral patterns. Definitely the work of an old hand. The yarn was hand-dyed, and the bright red of the petals was made from *madder*, a natural dye commonly used in Nepal. And there’s a very small strand of cat fur on it,” added Gregory.

“Well done, Greg. The man was dragged into the river, and much evidence had been washed away. But some human skin tissues were found beneath the nails of his left hand. There are two sets of DNA in the tissues, one being his, and the other unidentified. Probably they were scratched from the assailant’s skin when the victim was struggling. I’ve searched the DNA database and found no match. The blood stains on the pebbles along the path leading down to the river belong to the victim. Pretty disappointing, isn’t it?” Eyes closed, Molly took off her glasses and gently rubbed her temples.

It was seven o’clock in the evening. After consolidating all the facts of the case, Molly rang John up. The detective jumped up from his chair upon hearing what Molly said.

“Letter ‘C’? It could be short for ‘Catherine’, the victim’s wife! But nothing suspicious about her. She was giving a tour performance in Paris when her husband was killed. A very strong alibi,” said John.

In the following week, John resorted to the old-fashioned

technique – conducting door-to-door interviews in the neighbourhood. One crisp morning, when walking along a pebbled road near the victim’s home, he saw a cat with white fur looking out of the window of a small house. Something clicked in his mind. He had been there before, but there was no sight of a cat. He walked up to the house, and knocked on the door. Soon, a lanky middle-aged man wearing a pair of gloves appeared from the back of the house, holding a piece of wet cloth.

“Detective John, what’s up again?”

“Mr Peterson, good morning. I just walked by. What are you holding?”

“A piece of tablecloth.”

“A very special colour.”

“Yes, I dyed it myself.”

“Fantastic. By the way, can I use your loo? Nature’s call.”

John was led into a pristine living room, where the white cat snugly coiled up on a red sofa. Awakened by the detective’s noisy entrance, it sprang up and dashed into the dining room. John’s attention was caught by the tuft of fur tucked in a corner of the sofa and the pair of knitting needles on it.

John asked, “Do you knit?”

“No, no,” stuttered Mr Peterson.

Soon after walking into the bathroom, John glanced around to see if there was anything suspicious. He opened the mirrored cabinet on the wall and saw a comb with hairs snagged in it. Carefully, he took them out with a piece of tissue paper. Then he knelt down and found a blue bucket blemished by red dyes under the sink. He scraped off some of the stains with a toothbrush. Having got what he wanted, he flushed the toilet and walked out.

“Could I have a cup of tea?” John asked before seating himself on the sofa.

“Certainly.” Mr Peterson disappeared into the kitchen.

Losing no time, John stuffed the cat’s fur into his pocket. While he was fumbling with his pants, his eyes were drawn to a photo on the lamp table. In the photo, Mr Peterson was chatting happily with his friends, holding a pair of knitting needles. Something more interesting was found. Though the image was a bit blurred, John was certain that the woman wearing a beautiful scarf at the back was Catherine. John’s lips twitched with half a smile.

Two days later, John received a call from Molly.

“It’s him. Everything matched.”

“Molly, he really got me. Do you know any man who knits?”

“Oh, come on, John. A lot of men knit.”



機械人

在美國麻省理工大學的實驗室，研究員穿上狀似盔甲的金屬架，一邊舞動電子臂，一邊定睛看着身旁機械人的動作是否一致，然後扎穩馬步，使勁地揮出右臂，模擬攻擊。機械人好像與研究員心有靈犀，同步揮拳，擊碎了面前的障礙物，動作乾脆利落。研究員接着戴上與機械人頭上攝影機連接的特製眼鏡，利用電子臂前端的遙控器，指揮機械人輕輕用手指捏扁一個小鋁罐。

這款機械人樣子奇特，宛如科幻電影中的天外來客，金屬外殼上滿布電線，不僅四肢活動自如，雙手也靈巧敏捷，能輕易做出不同的精細動作。機械人好像擁有人類的腦袋般，能聽從研究員的指示移動，加上銅筋鐵肋，孔武有力，在災難時定能代替人類執行危險艱巨的救援任務，大派用場。

機械人的研發一日千里，種類五花八門。在意大利某電視台的錄影室，有一矮小機械人端正地站在台上，接受才藝節目主持人提問。遭到刁難時，機械人不停轉動圓溜溜的眼睛，以表不滿，活像個老氣橫秋的小孩，讓人忍俊不禁。為了考考機械人的智慧，主持人提出一道複雜的乘數題，機械人不假思索便答對了，全場報以熱烈掌聲。小小機械人能言善道，更自詡能文能武。主持人不服氣，跑到台上比試武功。機械人見勢隨即拉開架式，提起單腿耍起太極拳來，節奏從容不迫，動作有板有眼，觀眾無不嘖嘖稱奇。

這個小小機械人是意大利理工學院努力研究的成果，聰明伶俐，具備兒童般的思維和認知能力。研究員深信，機械人跟嬰兒一樣，只要得到啓蒙，什麼技能都能夠學會。為了證明這點，他們教機械人射箭，但只教基本的握弓方法，瞄準和射靶的技巧則由機械人自行摸索。機械人最初屢試屢敗，但後來慢慢掌握了箇中竅門，明白須計算距離和調校

力度，經過一番努力，終於一箭命中靶心。今天，這款智慧型機械人不僅懂射箭、耍太極拳，還會彈鋼琴，堪稱多才多藝。

談到機械人，不得不提木戶小姐。二零零五年，世界博覽會在日本愛知縣舉行，木戶小姐首次亮相，哄動全球。木戶小姐個子高挑，面如凝脂，明眸善睐，舉手投足與真人無異。她動手指、眨眼睛，靠的是一台大型空氣壓縮機。壓縮機輸出的氣體傳送到機械人身上的“氣線”，驅動她做出各種動作。如今木戶小姐機械人已發展到第三代，動作變得更輕柔，一顰一笑愈見逼真。

仿真人形機械人究竟有何實際用途？到日本長崎全球首間由機械人提供服務的酒店走走，可能會找到答案。甫進酒店大堂，會迎面看到貌似木戶小姐的機械接待員。她身穿米白色制服，笑容可掬，負責為旅客辦理入住或退房手續。酒店內還有各式各樣機械人：小巧的箱形機械人會把行李送到旅客房間，房內別致的機械人會為住客開關電燈、調節室溫，走廊又有智慧型機械人指導住客如何使用設施。



看來機械人的用途真是數之不盡，不僅能深入險境救急扶危，還能在台上表演，在酒店當接待員。機械人愈來愈先進，既靈巧精確，又具人工智能，確實幫了人類不少忙。不過，假如所有事務都交由機械人處理，人類安全會否受到威脅？發展下去，機械人會否有一天超越人類，不受控制？屆時，人類又該如何自處？

HOLLYWOOD FAILS

The line between science fact and science fiction can be blurry. And nobody exploits this fine line more blatantly than Hollywood. Usually the discrepancies are excusable in the name of preserving the fun factor. For example, shrieking laser blasts and ear-splitting explosions are a staple of the Star Wars universe. Imagine watching Luke Skywalker battling a swarm of TIE fighters in space on his X-wing in total silence. Even though such a presentation would be scientifically accurate because sounds cannot propagate through a vacuum, something would be missing without all the “pew, pew, pew” and “ka-booms”. Other slip-ups are not so innocent, however.

Let’s poke fun at some of them.



Michael Bay’s *Armageddon* (1998) tells the adventure of a team of oil drillers who save mankind from the brink of extinction by deflecting an asteroid the size of Texas. It is true that the universe may someday hurl a monstrous space rock – one of those wiped out the dinosaurs 65 million years ago – in the direction of our little blue planet. It is also true that we, unlike the dinosaurs, will not be sitting ducks, as human ingenuity is something we can always count on in the most desperate of times.

Nevertheless, if there ever was one killer asteroid heading our way, we would not send some drillers there, dig a hole in it, stick a nuclear bomb down the hole, set off the bomb, and expect the rock to split nicely in half and leave us alone, as depicted in the movie. In fact, the nuke will only dent an asteroid of this size. Even if it did the trick, a blanket of smaller asteroids would be created and pepper our planet like a cosmic shotgun blast. Worse still, the impact would no longer be localised to one area. Scientists are currently exploring the possibility of sending a small spacecraft to one of these killer asteroids and using its minuscule gravitational force to gradually nudge the asteroid out of a collision course with the Earth. But how boring this would be in comparison with the bombastic plot of sending Bruce Willis and Ben Affleck to blow up the rock, accompanied by heroic close-ups?

Despite the thumbs down from the critics, *Armageddon* was a tremendous box office success, so Hollywood started

searching for humans’ next existential threat. They found it in our own planet a few years later. The 2003 movie, *The Core*, builds on the ludicrous premise that the Earth’s iron core is about to stop rotating and threatens to shut down the Earth’s magnetic field, which is generated by the core’s motion. The problem is: if the core stalls, losing the magnetic field will be the least of our concerns because all the energy stored up in its rotation will be released and boil the oceans among other destructions. But let’s play along for a moment longer.

In an early scene, a scientist tries to alert a panel of officials to the crisis. He cuts open a peach for illustration: the peel

is the Earth’s crust, the pulp its mantle, and the seed its core. The metaphor is close enough, but it is only a short step to go from science to fiction. Back to the scene: he holds the peach with a fork and burns it to a lump of coal with the help of an aerosol can and a lighter. In a foreboding voice, he warns that microwaves from space will make barbecue out of us once the magnetic field is gone. Scary? But don’t run for cover just yet.

Sure, the Earth’s magnetic field does shield us from high-energy particles in space. When there is a solar flare, the Sun will send a countless number of these particles our way and put on a spectacular aurora display. In a worst-case scenario, they may temporarily knock out power grids and satellites. However, microwaves are not charged particles. The magnetic field has no effect on them at all. Microwaves are electromagnetic radiation like visible light but their energy level is even lower. They may mess with radio signals or mobile phone calls, but they pose no health hazard. So the heroes in the movie are making a big fuss about nothing.

Hollywood has a tenuous relationship with facts as it is in the business of peddling dreams. Cars rarely explode, bullets won’t send people flying backward, gasoline cannot be ignited with a cigarette butt, you can’t outrun an explosion, and we certainly use our whole brain, not 10% of it. Always question what Hollywood tells you about science. So enjoy the show, but never check your brain at the door.

Science is not only a disciple of reason but, also, one of romance and passion.
Stephen Hawking



Wonders of the Universe

Andy NG
Official Languages Officer I
Civil Engineering and
Development Department

Year after year on crystal-clear midsummer nights, stargazers lie on their backs and look up at the dark velvety sky, mesmerised by the beauty of twinkling stars. Since antiquity, much folklore about the mysterious universe has been told. Constellations, for example, are formed to represent adored heroes or cursed beasts in ancient Greek myths.



Human exploration of the universe did not simply stop at stargazing or weaving tales. With keen observations and critical thinking, we have discovered the rulebook of the universe. It was once believed that the Sun revolved around the Earth and even that the

world was flat. But Galileo Galilei, an Italian astronomer and mathematician of the Renaissance, took bold steps to prove that the Earth revolves around the Sun, and that we are standing atop a rapidly spinning sphere, hurtling through space. While this heliocentric view stirred up stern opposition from the then Roman Church, the ensuing religious persecution luckily did not deter generations of astronomers from pursuing the truth and studying the universe.

Thanks to modern astrophysics and cosmology, our understanding of the universe has improved by leaps and bounds. For thousands of years, we have been asking the same old question: how did the universe come into being? According to the Big Bang theory, the universe came from the explosion of a singularity smaller than an atom around 13.8 billion years ago. But some scientists believe that it actually began with nothing, or almost nothing – a void in which packets of energy fled in and out of existence, vanishing as soon as they appeared. Then one of these fluctuations was so unstable that it began to grow like a bubble. Bang! The universe was born. Since then, it has continued to expand like a self-inflating balloon.

Human exploration of the universe is an uphill, never-ending adventure. With an admirably open mind and the zest for finding the truth, scientists have managed to look further into the cosmos; they have come up with a theory that says all galaxies, including our Milky Way, are moving away from each other, though we are uncertain what the universe will

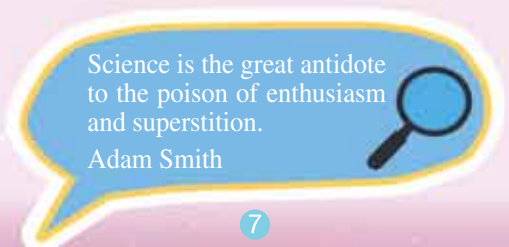
eventually evolve into. However, in this dynamic entity, collisions between galaxies take place from time to time, and evidence of such smash-ups litter the universe. The Milky Way, in fact, will collide with our closest neighbour Andromeda Galaxy in about four billion years!

How are the distances between galaxies measured? We need a totally different mindset to grasp the concept of interstellar distance. Jaws will drop if we take a closer look at the two common measurements of astronomical distance, namely, astronomical units (AUs) and light-years. The former, defined as the mean distance between the Sun and Earth, is equivalent to 149,597,870.66 km, about 11,770 times the diameter of the Earth. Yet this mind-boggling figure pales in comparison to the latter, the distance that light can travel in a year, which is equivalent to 63,240 AUs or 9.461 trillion km.

Take Alpha Centauri, the closest star system to our Solar System, as an example. About 4.35 light-years, or 270,100 AUs (roughly 39.9 trillion km), away from us, it is so far away that it would take 165,000 years for a space shuttle from the Earth to reach there. In other words, interstellar travel, one of the most popular themes in science fiction, will remain a distant dream unless the speed of our spacecrafts can be increased at least to about 300,000 km per second, or the speed of light in a vacuum. Even so, it would take 2.5 million light-years to reach the Andromeda Galaxy, not to mention the other galaxies farther away. Interstellar space seems to be stretching to infinity, and it takes a leap of imagination to picture what it is like.

The size of the universe is unfathomable, and the scope of its boundary remains beyond our comprehension. Perhaps the more we know, the more we realise how tiny we are in this universe. No matter how resourceful, intelligent or confident human beings are, we are nothing more than a grain of sand in the universe. Observing the grand beauty and underlying orders manifested by cosmological phenomena, such as supernova explosions, one just cannot help but marvel at the omnipotence of Mother Nature.

So, next time on your way home from work on a fine, crisp evening, why not slow down your pace and look into the darkness of the sky? If you are lucky enough, you may see a blanket of bright stars stretching across the sky. You may be so inspired that you get to unravel some of the secrets of the universe.



Science is the great antidote to the poison of enthusiasm and superstition.

Adam Smith

地球環繞太陽一周需時一年，水星與太陽最近，只需88天。淨化食水可加入明礬。運動後感到肌肉痠痛，原來是身體積聚乳酸所致。這些科學常識十分有趣，吸引人繼續探索自然的奧秘。大家對科學認識有多深？可有興趣接受以下挑戰？

- 為何不可把鋁箔紙放進微波爐加熱？
 - 鋁箔紙會吸收微波
 - 鋁箔紙會反射微波
 - 鋁箔紙會破壞食物的營養
 - 鋁箔紙會釋放有毒物質
- 以下哪個過程不會產生二氧化碳？
 - 燃燒食物
 - 動物呼吸
 - 工廠燃燒燃料
 - 光合作用
- DNA的中文名稱是什麼？
 - 缺氧核糖核酸
 - 含氧核糖核酸
 - 脫氧核糖核酸
 - 帶氧核糖核酸
- 電器故障引起火警，可用哪種方法處理？
 - 用沙桶的沙撲滅
 - 用滅火氈蓋着起火的電器
 - 用二氧化碳滅火器撲滅
 - (I)
 - (I) 和 (II)
 - (II) 和 (III)
 - 全部
- 土星環由什麼形成？
 - 石塊和冰粒
 - 氫氣和冰粒
 - 氧氣和碳
 - 碎石和碳粒
- 大氣層中的臭氧層有什麼作用？
 - 吸收核輻射
 - 吸收熱輻射
 - 吸收紅外線
 - 吸收紫外線
- 以下哪一句不正確？
 - 光合作用把光能轉換為化學能
 - 光合作用需要光能才可進行
 - 光合作用在綠色植物中進行
 - 光合作用產生二氧化碳
- 蜘蛛網是由什麼物質形成？
 - 脂肪
 - 澱粉質
 - 碳水化合物
 - 蛋白質
- 以下哪一句不正確？
 - 空氣含有多種氣體
 - 水裏沒有空氣
 - 空氣包圍着整個地球
 - 高山上空氣較海平面稀薄
- 以下哪項不屬再生能源？
 - 石油
 - 地熱能
 - 太陽能
 - 風能

請在二零一六年十一月十八日前，把答案連同下列個人資料寄回“香港金鐘道66號金鐘道政府合署高座2310室公務員事務局法定語文事務部《文訊》編輯委員會”。答對問題者可獲書券一張，名額五個。答案及得獎者名單將於下期公布（答案以《文訊》公布者為準）。

姓名：_____ 先生／女士（請刪去不適用者）
 部門：_____
 職位：_____ 電話：_____
 辦事處地址：_____

Not-a-Mindboggler

Solution of Issue No. 64

- Below the Lion Rock
- Kai Tak Airport
- Lee Tung Street
- Murray House
- Tiger Balm Garden
- Festival of Hong Kong
- Sam Hui
- Tsim Sha Tsui Clock Tower
- Rickshaw
- Bruce Lee

The following winners will be notified individually by post:

Name	Department
Fung Ka-man	Leisure and Cultural Services Department
Poon Yuk-wah	Transport Department
Fung Chun-kit	Department of Health
Darwin Pang	Correctional Services Department
Au Wai-chun	Agriculture, Fisheries and Conservation Department

Issue No. 66 (December 2016) : Paradise on Earth

二零一六年十二月第六十六期主題：人間天堂

Issue No. 67 (March 2017) : Friendship and Kinship

二零一七年三月第六十七期主題：情誼

Contributions from colleagues are welcome. Please refer to Issue No. 42 for details.

歡迎同事投稿，細則請參閱第四十二期。

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