卧室里的脑电波

BRAINWAVES IN THE BEDROOM

教育部基础教育课程教材发展中心 与牛津大学出版社合作项目



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IN THE BEDROOM

卧室里的脑电波



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出版说明

你希望自己的手指具有非凡的魔力吗?你想在家人和亲友面前展示神奇的魔法吗?不需要哈里·波特的指点,不需要昂贵复杂的道具,凭借这套小书的帮助再加上你的勤学苦练,神秘的科学之门一定会被你打开。

读过《牛津英汉对照科学魔幻丛书》,你将会发现,科学离你并不遥远,它其实就在你的身边:客厅、卧室、厨房、浴室,你的家就是你探索科学奥秘的理想天地!大家一起来读一读,想一想,做一做吧,高深的科学道理可能就蕴藏在日常生活中间。

读过这套丛书你还会发现,你的头脑更灵活了,视野更开阔了,说不定还成了一个小小"科学迷"。但是,比科学家更高一筹的是,你还是一个精通魔术表演的天才呀!

这套丛书是教育部基础教育课程教材发展 中心与牛津大学出版社合作项目,采用英汉对 照方式设计排版。丛书内容适合喜爱英语的小 学高年级学生及广大中学生阅读参照实验,也 可作为小学科学课教师的参考资料。译者根据 教育部制订的《全日制义务教育英语课程标准

出版说明

(实验稿)》和《全日制义务教育科学课程标准 (实验稿)》中有关中小学生英语、科普阅读量 和阅读目标的要求,结合小读者的特点,加了 不少注释文字。在力求对照严谨的同时,少数 段落采用意译,努力做到貌合神似,为你学习 英文和科学知识铺平道路。

希望这套丛书能成为你的好朋友,要知道, 还有更多、更有趣的牛津新书等着和你交谈呢!

> 出版者 2002年11月



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卧室里的脑电波





All the tricks in this book are self-working-that means you don't have to be a great magician to do them. The 'magic' will be done by Nature.

Magic and science have a lot in common.

Both magic and science can produce wonderful effects that leave us gob-smacked. Audiences always want to work out how a magic *illusion* works. Scientists try equally hard to understand Nature's tricks,

Magicians use a lot of *misdirection*²—getting the audieence to look in one direction while the trick is being done in another; Nature often seems to be doing the same. For thousands of years we thought that the Sun travelled across the sky above us; now we know that the Sun stays put and we do the travelling, so the Sun only seems to move. That's Nature misdirecting us.



Sie

本书中所有的戏法都是自我工作的——就是说你不必是一位大魔术师也能做得成,因为这些"魔术"是由自然来操作的。

其实,魔术与科学有很多相似之处。

它们都能产生奇妙的效果,令我们啧啧赞叹。至于观众嘛,他们总想把魔术的幻象弄个水落石出,科学家们同样想 澄清由自然上演的那些戏法。

魔术师经常采用障眼法,诱使观众只注意一个方向,而 戏法却是在另一个方向完成的。自然看上去也是如此。几千 年来人们一直以为太阳从我们的头上穿行而过,现在我们知 道,太阳是悬而不动的,运动的是我们,太阳只是看上去在 动。这就是自然的一种障眼法。

① illusion [i'lju:ʒən] n. 幻想; 幻影; 错觉

② misdirection [, misdi'rek [ən] n. 错误的方向: 误导

A magician's audiences will often say 'I know how that's . done!', when in fact they've got it completely wrong. Scientists often make the same mistake.

Two thousand years ago, the Greek *philosopher* Aristotle had some pretty wrong ideas. For instance, he thought that apples fell from trees because they wanted to. Aristotle's ideas seem crazy nowadays, but for 1500 years everyone thought he was the top banana !

Aristotle's mistakes have been corrected now, but some of the magic in these books still can't be explained even by the best of today's scientists; that makes it doubly magical.

As soon as a scientist finds that an experiment has gone wrong, he starts again, looking and testing and guessing until he gets it right. As you practice these tricks you'll find that they sometimes go wrong, but with a little practice you'll get them right. Soon your tricks will seem as magical to your audience as Nature seems to scientists.

Good luck.

Richard Robinson

在魔术师表演时,观众总是嚷着: "我知道那是怎么回事。" 但事实上他们完全弄错了。科学家们也常犯同样的错误。

两千年前,希腊哲学家亚里士多德就产生过一些非常错误的想法。比如,他认为苹果从树上落下仅仅因为它们想要落下。他的观点在今天看来很荒唐,但在1500年的时间里,每个人都认为亚里士多德是最权威的人物呢!

亚里士多德的错误现在已被纠正过来,但这套丛书中展示的一些魔术连当今最优秀的科学家也无法作出解释。这就 使它们显得越发不可思议了。

一个科学家,一旦发现实验出错,就会重新做,观察,试验,推测,直到得出正确的结论。当你自己变戏法时,你就会发现有时它们也会出错,但稍加练习就会做成功的。要不了多久,观众就会认为你的戏法充满了魔力,就如同自然在科学家看来显得神秘莫测一样。

祝你好运。

Rhan Rb-

理查德·鲁滨孙

① philosopher [fi'losəfə] n. 哲学家

② Aristotle [,æris'tɔtl] 亚里士多德 (前384-前322), 古希腊哲学家、科学家。

③ top banana 第一流的人物

TRICKS OF THE CAME MIND

The first part of this book concerns the main thing in your bedroom-YOU! We'll see how easy it is for you to trick yourself, even when you know you're being tricked. You'll be seeing things that aren't there, and you'll be unable to see things that are right in front of your eyes.

Perhaps you think your bedroom is one place you can be completely alone. Think again. You are surrounded by strange creatures^①. The bugs that live in every corner of the room, the weird^② things that teem through your mind when you dream. Are there ghosts? What are those lights floating in front of your eyes? We will investigate.

Later on we're going to find hidden magic powers in the most unlikely places-a piece of paper, a lump of air, a plastic pen, a





大脑的魔术

这本书中的第一部分将涉及卧室中的主角——就是你! 我们会看到,尽管你知道自己正在受愚弄,却多么容易被自己所愚弄。你会看到那些原本就不存在的现象,却看不到那些近在咫尺的东西。

也许你认为卧室是一个可以让你真正独处的地方,可再一想,你其实是被许多陌生的生物包围着。虫子们躲藏在房间的每个角落,奇形怪状的东西在梦境中充斥着你的大脑。有鬼吗?在你的眼前晃来晃去的光是什么?我们将仔细地研究它们。

稍后,我们将在那些最不起眼的地方,挖掘那些隐藏着的"魔力"。这些地方包括一张纸、一团空气、一支塑料壳的钢笔、一个气球······

lacy do this all the time, as we re going to see. In this particular case, the answer is near, clear and visible but a mirror and varely your eyes in it while you run the light on The coloured but of your eye, or in the is actually a muscle. You can see it swell

① creature ['kri:tfə (r)] n. 生物; 动物

② weird [wiəd] a. 怪诞的; 神秘的; (口) 奇怪的; 不可思议的

CHAPTER ONE TRICKS OF THE MIND

All these things can give us ideas for magic illusions. But let's start with the impossible: doing amazing magic on yourself. That must seem as $daft^{\oplus}$ as trying to tickle yourself—it just can't work, can it? Well, as you will see, it can.

You're standing in your room. It's early evening. The light is beginning to fade outside. You turn on the light. Suddenly it's midnight! Outside, the sky has turned completely black. How did you get such power over nature? Why aren't you famous? Why aren't you mobbed in the street?

Sorry, it's all rather boring, actually. Your eyes are playing tricks on you again.



They do this all the time, as we're going to see. In this particular case, the answer is neat, clear and visible. Find a mirror and watch your eyes in it while you turn the light on. The coloured bit of your eye, or *iris*², is actually a muscle. You can see it swell up and close off the hole into the eyeball (the *pupil*³), to protect it from the light.

所有这些东西都将给我们带来关于"魔幻"的启示,不过还是让我们先从不可能的事情开始吧:在你自己身上做那些令人惊奇的魔术。对自己施魔法,那一定会被人认为是很疯狂的——简直是不可能,不是吗?不过,正如你将看到的,那是能实现的。

现在已经是傍晚了,你正站在你的房间里。窗外的天色 正慢慢地暗下来,你打开灯。突然间你已处在午夜时分!窗 外的天已经完全黑了。你是怎么得到这种摆布自然的神奇力 量的呢?你怎么没有因此而成名?为何你仍旧夹在人群里默 默无闻?

对不起,说这些确实有点儿无聊,你的眼睛又一次愚弄 了你。



在我们看东西的时候,眼睛时时刻刻都在对我们实施法术,在这个特殊的事例中,答案是显而易见而又明白无误的。 找一面镜子,当你开灯时,从镜子里仔细观察你的眼睛,你 眼睛里带颜色的环,或者叫虹膜,实际上是肌肉。在开灯的 瞬间,你会看见它先扩张,然后收缩瞳孔,以保护眼球不受 亮光的刺激。

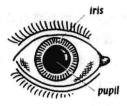
① daft [da:ft] a. 傻的; 愚蠢的; 疯狂的; 狂热的

② iris ['aiəris] n. 虹膜

③ pupil ['pju:pəl] n. (解) 瞳孔

CHAPTER ONE TRICKS OF THE MIND





eye in bright light

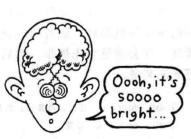
eye in dim light

With less light going in, the bright things no longer dazzle¹, but the darker things, like the evening outside you windows, are now even darker.

If too much light gets into the eye, the *delicate* ² light – sensitive cells (called the *retina* ³) get burned out. Take a quick glance at a bright light, then shut your eyes. That bright after – image that you see is the sign that some of the light-sensitive cells have been over –exposed. They get such a blast of light that they're still sending messages to the brain long after the light has gone. So; for a couple of minutes, you get great big bright blobs before your eyes.

One thing you must NOT EVER do is to stare directly at the Sun, because it is bright enough to do you lasting damage.

One thing you MUST do it use this after -image in amagic trick.





亮光下的眼睛

暗光下的眼睛

随着入射到眼睛中的光线减少, 那些明亮的东西不再耀眼 了, 而像窗外的夜色那些本来就较暗的东西, 则变得更暗了。

如果过多的光线射入眼睛,就会损伤眼睛中那些敏感的 感光细胞(视网膜)。遇到亮光时,你迅速地扫一眼后,应该 赶快闭上眼睛。稍后你依然会看见光亮的形象, 那是感光细 胞过度曝光的结果。它们接受到亮光以致在光已经逝去很久 之后,仍然持续地向大脑传递信息。所以几分钟之内,你仍 会感觉眼前一团光明。

千万不要直视太阳, 因为 它的光非常亮,足以对你的视 力造成永久性的伤害。

你一定要做的是, 在魔术 中利用好这种暂留余像现象。



① dazzle ['dæzl] v. (强光等)使目眩;使眼花;耀眼 闪耀

② delicate ['delikit] a. 敏锐的: 灵敏的

③ retina ['retinə] n. 「解] 视网膜