



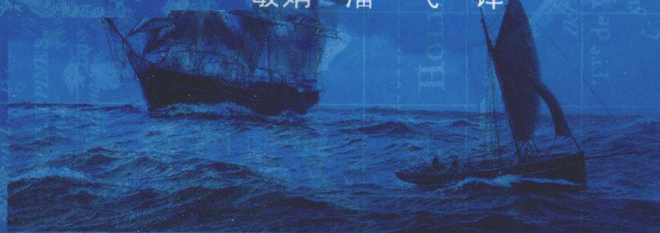
发明的故事 太平洋的故事

英汉对照

The Story of Inventions
The Story of the Pacific

[美]房龙 著

敏娟 潘飞 译



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THE STORY OF INVENTION

发明的故事

THE STORY OF THE PACIFIC

太平洋的故事

(英汉对照)

[美] 房 龙 ⊙ 著
袁敏娟 潘 飞 ⊙ 译

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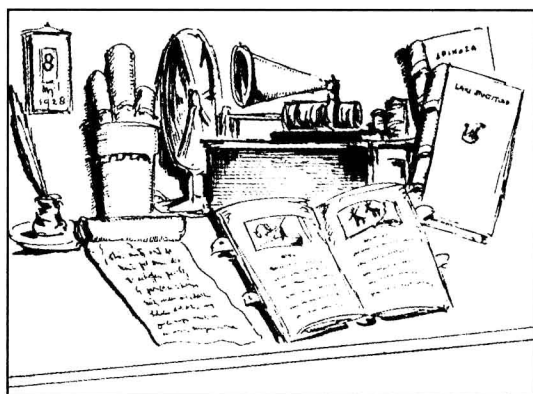
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THE STORY OF INVENTION

发明的故事

袁敏娟 译

FOREWORD

In the beginning everything was very simple. The earth was the center of the universe, Heaven was a large dome of beautiful blue glass.

At night the little angels pricked holes through that dome and behold! There were the stars.

But one day a courageous man, armed with a threepenny telescope, climbed to the top of a tower and took a long and serious look.

From that moment on there was trouble.

First of all, the sun had to be requested to move to the center of the universe. Next it was discovered that our farfamed solar system was not a “universe” at all but a mere insignificant detail of a mysterious and vast project which in turn was an even more insignificant detail of an even more mysterious and vaster plan which was vaguely supposed to be an absolutely insignificant detail of an out-of-the-way corner of the Milky Way.

These revelations caused great perturbations not only among the theologians but also among the mathematicians and astronomers. Thus far they had been able to measure the distance between the earth and the moon and even that between the earth and the nearest planets with the help of kilometers and miles.

But now, when the famous old human “cosmos” had quite unexpectedly grown into something more important than a convenient stage-setting for a chapter in one of the holy books of the East; when it was gradually becoming evident that there existed stars of such incredible size that the greater part of our own solar system could be hidden inside their bellies without inconveniencing the patients in the least; when the zeros which had sufficed

序言 人，神奇的发明家

起初，人们认为一切都平淡无奇，地球就是整个宇宙的中心。天空宛如一块硕大而美丽的蓝玻璃做成的圆顶。

当夜幕降临时，一些小天使会在那圆顶上刺出些洞眼。看！那就是星星。

直到有一天，一位勇士带着一个花三便士买来的望远镜，爬到一座高塔的顶端，意味深长地观察了一番。

从那时起，这个世界就波澜起伏了。

一开始，人们发现原来太阳才是宇宙的中心。随后又发现我们声名远播的太阳系并不是“宇宙”的全部，它只不过是一个神秘而巨大的物系中微不足道的细枝末节。而那个神秘而巨大的物系，又是另一个更神秘、更巨大的物系中更微不足道的细枝末节。同样，这个更神秘、更巨大的物系也被假定为偏离银河系的某个角落中的一个完全不起眼的枝节。

这些惊人的发现不仅对神学家产生了巨大震动，也震惊了数学家和文学家。一直以来，他们都用公里和英里作为单位来计量地球到月球的距离，甚至计量地球到离它最近的行星的距离。

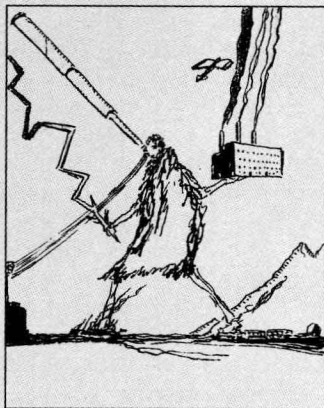
for the simple calculations of our great-grandfathers were multiplying themselves trillion-and quadrillion-fold; it was felt that the time had come to devise a new geometrical standard which should keep the astronomers from wearing out their elbows while handling their slide-rules.

For this purpose the so-called “astronomical unit” of 92,900,000 miles was established. It represented the mean radius of the earth's orbit, and it was a handy enough yard-stick, as long as one did not venture too far away from home.

But once among the real stars (the big ones, not the little fellows which are our own neighbors) such “astronomical units” became mere trifles, and it was necessary to think of something a little more substantial than a paltry 92,900,000 miles.

Just then Albert Michelson was experimenting with light and had figured out that a ray of light (of course it is sheer nonsense to speak of “rays of light,” but I am using the word because we are still so hopelessly involved in the poetic nomenclature of the Romantic Period that centuries will have to elapse before we shall be able to think in the terminology of the Age of Science)—as I was saying, just then Michelson had discovered that light is a substance which moves at the rate of speed of 299,820 km. per second, and this gave some one a bright idea. By multiplying 60 seconds with 60 minutes, the result with 24 hours and this result with 365 days, he came to the agreeable conclusion that light traveled something like 10,418,623,400,000 km. per year. This distance was then called a “light year” and became the tape-measure of the modern heavens.

At first it seemed that now everybody would be happy. Before the introduction of



万能的人

然而现在，人们发现这位著名的“宇宙”老人出其不意地高大起来，而不再是某本东方圣书某个章节中的合宜的舞台背景。人们逐渐发现，还存在大得令人难以置信的星球，即使它们把比我们太阳系还大的物系吞到肚子里，也不会有丝毫的消化不良。人们发现，从前足够我们祖先用来应付简单计算的零，也已翻了上亿倍或者上百万亿倍。因此人们感到该是制定一套新的几何标准的时候了，以免天文学家在进行数量级计算时磨破胳膊。

为此，规定9290万英里为1个“天文单位”。这个数字是地球公转轨道半径的平均值。而且，只要一个人离家不远，这就是一个合适的标尺。

可是对于大的星球（这里指的是大星体，而不是像我们周围的这些小星粒），这个“天文单位”又显得不实用了。于是有必要设计出一个比9290万英里更为适用的单位来。

这时，阿伯特·麦克逊正在进行光学实验，并发现了一束光线（当然，用“光线”这个词是有些荒谬的，但我之所以如此，是因为我们仍然无可救药地局限于浪漫主义时代的诗词。也许还需要经历几百年，我们才能用上科学时代的术语）。我所说的是，此时阿伯特·麦克逊发现光是一种能以每秒299,820公里速度移动的物质。这个发现给人们带来一丝灵感。他用60秒乘以60分钟，再乘以24小时，然后乘以365天，得到一个满意的结果。那就是光在一年中的传播路程是10,418,623,400,000公里，这个距离被定义为“1光年”，成为现在天文学中的计量单位。

起初，看起来该皆大欢喜了。在引进“光年”之前，半人马座——众星中离我

the “light year” Centaur, our nearest neighbor among the stars was 25,000,000,000,000 miles away from us. Afterwards it was possible to say offhand: “Centaur? Oh, yes, a mere 4.35 light years away from us. Almost too close for comfort!”

But alas, the appetite of the astronomers for distances was insatiable. They discovered nice little orbs situated at a distance of twenty or thirty thousand “light years.” Then they made a bold dash for the nebulae, those luminous spots which remind us of microbes seen underneath a microscope, and they figured out that some of them were situated at distances which varied between two and three million light years.

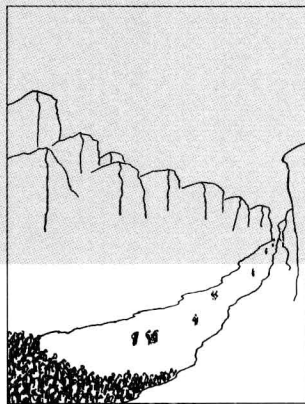
Then, even the “light year” became just a trifle ridiculous.

But who would give us something better?

Now all this is not spread before your admiring eyes for the mere purpose of showing you that I am either a man of profound erudition or a person lucky enough to have acquired an Encyclopædia Britannica on the installment plan. I am playing these few chords on the instrument of eternity to sound a note of warning in regard to the rest of this book.

When the earth was rudely deprived of her favored position as the “center of the universe” there were those who thought that man, too, was about to be pushed from that high pedestal upon which, by right of eminent arrogance, he had placed himself as soon as he had ceased to walk on all fours. Surely within a universe composed of tens of thousands of nebular spots, each of them bigger than a couple of millions of square light years, man would feel himself reduced to such infinitesimal proportions of insignificance that he would cease to boast about his divine origin and would begin to see himself as what he is—a fairly clever animal and nothing else.

But soon it became evident that such a change in his mental attitude was impossible, that a fire in his own back



进步

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们最近的邻居，与我们相距25,000,000,000,000英里。后来，人们可能会漫不经心地说：“半人马座？哦，不错，离我们只有4.35光年。如此近的距离真让人感到不安！”

但是，哎哟！天文学家对距离的胃口是永远不会满足的。他们已经发现了一些可爱的小星球，离地球2万–3万光年之遥。随后他们又一次大胆冲向星云，这片星云由那些闪烁的小星球构成，让我们联想到显微镜下看到的微生物，并发现小星球与地球的距离已经变成了200万–300万光年。

然而不久，就连“光年”也变得荒谬了。

但是有谁会给我们提供更好的标尺呢？

现在，我说这些可能会让你投来羡慕的目光。但我并不是在向你炫耀我学识渊博，也不想炫耀我有幸通过分期付款买到一本《大不列颠百科全书》。正相反，我在“永恒”这件乐器上弹出这几根和弦，旨在引出下文。

当地球被粗鲁地夺走了作为“宇宙中心”的优越地位时，有些人认为人类也会从高高在上的位置上摔下来。人类告别四肢行走时，就十分傲慢地把自己设在这个位置上了。当然，在宇宙中有几万颗星体，每一颗的直截面积都超过200万平方光年。于是，人类会感到自己是如此的渺小，从此不再自诩是神授生灵，转而看清自己的真实本性——一种很聪明的动物。

但不久人们就发现，要使自己的思想观念发生这样的变化是不可能的。这好比自家后院着火对他的影响和紧张程度，比赤红的天蝎座（它的直径是640,000,000公

yard would always be of much greater importance to him than a disastrous volcanic eruption on reddish Antares (which has a diameter of 640,000,000 km.), and that a suspicious knock emanating from the cylinder of his own car meant vastly more to him than the rumor that Betelgeuse (the only fixed star that ever succeeded in breaking into the Sunday supplements, through sheer weight and bulk) was threatened with extinction. Not to forget that dreadful throb in his wisdom tooth which would fill him with a much more profound apprehension for the immediate future of the human race than the information that the faithful old moon was about to join her five former, sisters in oblivion.

And perhaps that was just as well.

For while the astronomers were extending and enlarging the universe until it threatened to become grotesquely infinite, other scientists were tackling the atom and by reducing that hapless mite to smaller and ever smaller proportions, they finally discovered a world of infinitesimally small particles which on a scale of 1/100,000,000,000,000 of a millimeter disported themselves with the regularity and precision of so many full-fledged, ultramicroscopic solar systems and performed such marvels of abbreviated balancing and counterbalancing that the average brain, in ever increasing whirls of dizziness, was forced to refuse to believe such things possible or go stark mad.

No, it was just as well that man should remain the center of the universe. At least, until that day when he shall have acquired a real brain.

Nevertheless revelations of this sort were bound to have some influence, however slight, upon the attitude of the human race towards the problems of life, and the hero whom you will meet within the pages of this book will prove very different from the patriarch of ancient days, who considered that he had been appointed chief beneficiary of all creation and as such could slay and murder and maim all his neighbors of the animal kingdom and that the universe had no other purpose than to cater to his wants and supply his manifold needs.

He may be the beginning and the end of all things (as he has been told for thousands of

里)上的火山喷发要大得多。这好比自己汽车的汽缸中传出的异常声响,比猎户座(由于它重而大,成了刊登在周日增刊中的唯一一颗恒星)遭受毁灭的谣言更让人紧张。不要忘了人类伶牙俐齿时那可怖的抽痛,这说明人类已经对不远的将来充满忧虑。相比之下,有关诸如忠实而古老的月球不久也将追随她五位姐妹一起香消玉殒之类的信息,人们却不会太以为然。

或许,本该如此吧。

当文学家早对宇宙进行更深、更广地探索,直到发现它离谱到漫无边际时,另一些科学家却在研究原子,把那个可怜的小家伙分割得越来越小,最终发现一个由无限小的粒子构成的世界。这些微粒的直径大都规则而精确地定位在 1×10^{-14} 毫米的数量级。其精确程度如同完全成熟、极其微小的太阳系。它们还上演了短暂的平衡和再平衡的绝活,以致一个正常人的脑子都会变得极度眩晕,要么索性不相信真有此事,要么就直接疯掉。

不,就让人类继续做宇宙之主吧。至少把这个位置保留到人类获得真正大脑的那天。

然而,这类发现必定会对人类的人生观产生一些影响,不管影响多么小。本书中的主人公与古时候的族长完全不同。族长认为人类是天命的众生之主,可以掠夺、



太空

years) but in his heart of hearts he is begining to doubt it, and he is gradually commencing to suspect that there is no beginning and no end, that the “here and now” of a million years ago was pretty much the same as the here and now of to-day or the “here and now” of a billion years hence.

He may be the highest summit of perfection among all living matter, but he prefers to suspend judgment until he shall have discovered what sort of life has developed on some of the other billions of stars which keep him company on his voyage through space.

In short, after a detour of several thousand years, he dares once more to be conscious of that noble classical ideal which summed up the philosophy of the desirable life in the magnificent words:

“We are all of us merely human beings and nothing pertaining to the universe we think foreign to us or unworthy of our attention.”

Basing his right of inquiry upon the patent royal of an almost sublime curiosity (that was bestowed upon him on the day of his birth), the hero of this book intends to pry into every corner, to explore every region, to investigate the hidden meaning of every phenomenon which comes within the reach of human reason and to do this without respect for anybody or anything beyond the limits laid down by that demonstrable truth which shall be the cornerstone of our future development.

If he prove to be successful in his search, he shall let his neighbors know without pride. If (for the moment) he find himself baffled by the difficulties that confront him, he shall confess his defeat without shame and shall leave it to others, better equipped than himself, to try again.

Above all things, he shall say “yes” to Life and, armed with patience and forbearance and goodnatured humor, he shall relentlessly push forward into the realm of the unknown until the little drop of energy which he has borrowed for a short space of time shall be needed for some other purpose, when he expects to surrender the loan without a single word of

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残害其他动物，而宇宙的存在只是为满足人类的多种欲望，供给人类的各样需求。

人类或许就是万物之源（这个观念已流传了千万年）。但是，在内心深处，人们开始表示怀疑。人们觉得宇宙的存在是没有起点和终点的。100万年的“此时此地”与今天的“此时此地”，以及10亿年后的“此时此地”是完全相同的。

人类或许是所有生命中最绝妙的一种。但人们不想立即定论，而是先去探索寄生在其他几十亿颗星球上的生命形式。那些生命形式是同人类一起在宇宙中遨游的伙伴。

简而言之，经过几千年的辗转，人类敢于又一次体味那崇高的理想。这条人生哲理可以用一句豪迈的话来概括：

“我们都只不过是人。但同宇宙有关的事物，都值得我们去关注。”

本书的主人公把人类探索的权力寄托在某位王族身上，因为此人具有崇高的、与生俱来的好奇心。他希望探索每一个角落，探索每一片地区，研究符合人类理性的每一个现象。他要做这些事，但绝不崇拜任何人、任何事，而是立足于可证实的真理，这些真理是我们未来发展的基石。

一旦探索成功了，他会谦虚地让邻居们知道。如果（暂时）发现自己被眼前的难题所阻挠，他也会毫无顾虑地坦白，把未了的事业留给比自己更卓越的人继续努力。

最重要的是，他能正视人生，具备耐心、宽容和善意的幽默。他会不屈不挠地迈向未知的领域，直到原本为短暂的人生而借用的一小滴能量需用在别处，这时他也会毫无怨言地归还。因为他知道，生和死都是同一思想的表现方式，在这个世界上

regret, as he has learned that both life and death are but expressions of one and the same idea and that nothing really counts in this world except the courage with which the individual dares to attack the one problem to which there is no definite solution, the problem of existence.

All this, I know, sounds rather complicated.

But it is not half as complicated as you think, if you will only read it rather slowly and try it again a couple of times.

Those who find that job too much for them had better drop the book right here. They would soon be bored and annoyed and they would wonder what it was all about and why it was ever written and they could employ their time much more profitably by going to the movies.

But as for the others, those who have already guessed what I am driving at, they too are not in need of any further introduction. They will understand that while I may not have solved any problems definitely, I have tried very, very hard to show them how certain things happened to happen the way they actually happened because that was the only way they could possibly happen, and along which lines we may hope for the ultimate emancipation of mankind from that cruel tyranny which for so many hundreds of thousands of years has turned this earth into a shambles and which was the direct and inevitable outcome of man's cowardice when face to face with his prejudices and his ignorance.

And now one final word.

The great work of delivery will never be accomplished without steadfast and unselfish service on the part of a small hand of chosen pioneers.

Some of my readers may even suspect that I want them to be among the leaders whose praises are sung within the pages of this volume.

Their suspicions would be correct.

For that, on the whole, is why I wrote the present book.

H. v. L.

Veere. August 31, 1928.

序言人，神奇的发明家

009

上，除了勇气任何事都不足为道。有了勇气，一个人就敢于挑战那些还未得到彻底解决的问题。

我知道这一切听起来相当复杂。

但事实上并没有你想的一半复杂，只要你仔细品味，反复读几遍。

如果有人认为这个任务太繁重，那么最好现在就放弃。因为他们不久会感到枯燥、烦闷，会觉得这书写的是什么呀？目的何在？还不如把时间花在看电影上更合算。

不过还是有一部分人，他们已经猜到此书的目的，无须我进一步介绍了。他们明白，尽管我不能实实在在地解决任何问题，但我已经非常非常努力地在揭示特定事情的发生方式，因为只有这唯一的方式。沿着这种方式，我们有望从残酷的暴政中获得人类的最终解放。千万年来，这些暴政把地球搅得乱成一锅粥。这也是致使人们不敢面对自己的偏见和无知的直接、必然的罪魁祸首。

最后再说一句——

没有小部分先驱者坚贞无私的奉献，这一伟大的解放事业也永远不可能完成。

有些读者甚至会怀疑我是想要他们为本书做宣传。

他们猜对了。

因为，总而言之，这就是我写作此书的目的。

亨德里克·威廉·房龙

1928年8月31日

ourselves.

And that reminds me of something that has puzzled me for a long time.

Why are people so tremendously interested in detective stories?

“It is the mystery that attracts them.” is the usual answer, or “It is the fascination of watching a single vague clew develop into an iron chain of incontrovertible evidence.”

For all I know, that may be the true reason. But in that case I wonder why more of them don't take up the study of geology, for the story of our planet is one endless series of the most magnificent riddles and only a few of them have thus far been solved. The others obstinately refuse to divulge their secrets, but in all fairness to them it should be said that there is not a single one among all these various puzzles to which there is not a key.

The people of ancient times knew this and they forced the rocks and the plains which were their home to tell them a great many things about their origin and their early past, which were of tremendous importance. But their successors, the humble folk of the Middle Ages, although they were great heroes on the field of battle, were terrible cowards within the Realm of Reason. They asked no questions, but meekly accepted what they were told out of an old book, and curiosity about the planet on which they lived was regarded as nothing less than sacrilege.

To-day the Middle Ages have been relegated to the museum of historical curiosities, another ten or twenty thousand years and the little crust on which we crawl around with such energy will hold no more mysteries than an aspirin tablet or a pumpkinpie.

It may seem that I am a little too generous with my thousands and hundreds of thousands of years, and juggle a bit too freely with the centuries. But that can hardly be helped in these days when fresh prehistoric discoveries have almost quadrupled



我们漂浮的牢狱

第1章 人,发明者 011

这让我想起一件困扰我许久的事。

人们为什么那么喜欢侦探故事?

一般的回答是“神秘感吸引了他们”;也可以说是“迷恋于看到一条简单而模糊的线索演变成成为一串铁证的过程”。

据我所知,那就是真正的原因。但我想知道为什么没有更多的人去从事地质研究。殊不知我们星球的故事正是一个最绝妙的无终点的谜团。我们只弄明白了为数不多的几处疑点,还有大量的谜团有待揭示。不过公正地说,没有一个谜团

是毫无线索的。

古人早就知道这一点。他们想从居住的岩石和平原中获悉一些有关他们起源和早期状况的重要线索。但是他们的子孙、中世纪的谦谦君子,尽管是驰骋战场的大英雄,却是理性王国中的懦夫。他们不提出任何质疑,唯唯诺诺地接受一本古书中的教义,甚至把对自己居住星球的好奇心看作是对神灵的亵渎。

今天,中世纪的一切已被收藏在历史的古董博物馆中。1万-2万年以后,这片我们赖以生存、繁衍生息的小地壳将不存在任何神秘之处了,就像阿司匹林药片和南瓜饼一样可以随意制作出来。

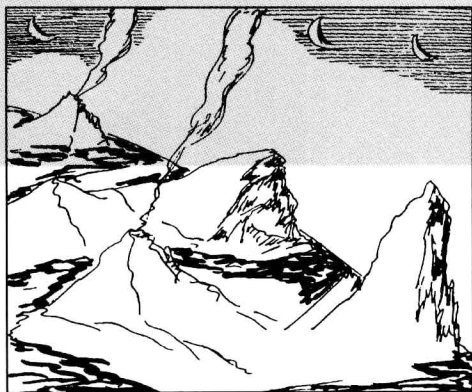
看起来我好像把几万年、几十万年说得太轻飘飘了,把几个世纪讲得太随意

the period during which we can speak of “history” in the accepted sense of the word as a “continuous methodical record of past events.” Besides, such a feeling of the vast duration of the existence of all the things with which we are familiar is very good for the soul and teaches us humility and patience. When we begin to realize that it took our ancestors something like 500,000 years to learn to walk on their hind legs, we feel a little more tolerant towards our own contemporaries when they fail to solve some important problem in less time than we think they ought to take and we get a better slant upon ourselves. We cease to be so terribly important. We become mere upstarts—creatures which did not make their appearance upon the surface of the planet until millions and millions of years after the majority of the other arrivals—rulers of the universe who only day before yesterday were admitted through the front gate.

As for the different steps which nature took to arrive at this fine conclusion—on-two-feet, we are still ignorant about many of the details, but in a general way we have at least a suspicion of how it came about.

It all began as soon as the outer crust of our planet had sufficiently cooled to support some sort of life. It was rapidly populated by an endless variety of plants and by multitudes of armor-clad, sightless creatures which spent their entire existence in the water and were the undisputed masters of the earth.

We know that some of them remained faithful to the sea and became the ancestors of the fishes upon which we feed to-day; that others developed wings and took to the air and became the grandparents of our modern birds. We have discovered that others, which belonged to the same family as the lizards and serpents of our own day, came to such great estate that for a long while it looked as if our planet was to be



地壳变硬了

012 THE STORY OF INVENTION 发明的故事

了。但是，在这些日子里，新的史前发现几乎让我们所谓的“历史”时期向前推进了四倍。“历史”一词的意思是“对过去事情进行逻辑性的记载”。更何况，知道了我们熟悉的一切事情都有悠久的历史，这对心灵是有益的，可以教会我们谦虚和耐心。当我们开始意识到我们的祖先花了

近50万年的时间学会直立行走时，我们可能会更加宽容地对待我们同时代的人。比如当他们解决一些重要的问题时，所花的时间比我们认为的要多，我们会变得更能谅解。此外，我们对自己也会有一番更好的审视。我们不会再过高地估计自己。我们只不过是高等动物。直到大多数其他生物到来的亿万年后，人类才出现在地球表面。所谓的宇宙之主，不过是前天才跨进了历史的大门。

至于自然界如何演变进化为两条腿走路，其中的许多细节我们仍然无从知晓，但我们至少可以大致推测出是怎么回事。

自从地表冷却到足以维持一些生命形式起，一切就开始了。很快，各式各样的植物开始生长，肉眼看不见的小甲壳虫也开始繁殖，它们完全是生活在水里，是毫无争议的地球主人。

我们知道它们中一些一直生活在海里，成为供我们今天食用的鱼类的祖先。另一些长出了翅膀，飞向蓝天，成为今天鸟类的始祖。我们也发现那些属于蜥蜴和蛇

permanently dominated by reptiles. For the climate of that period (and please try to think in terms of millions of years and forget all about the dates in your history book, which represents only a couple of seconds in the calendar of eternity)—the moist, damp climate of that period greatly favored the development of gigantic monsters, which were as much at home in the water as they were on land and looked and behaved like animated dreadnoughts.

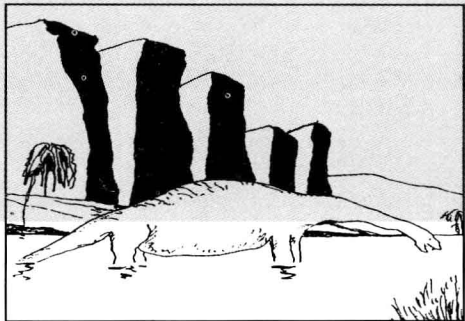
We also know that the period during which the air, the water and the land were the exclusive domain of beasts that measured forty or fifty or sixty feet and that had stomachs as large as the cabin of a fair-sized yacht, was suddenly followed by an era during which not a single one of them was to be found in any part of the globe.

How and in what way those early rulers of the world came to their ignominious death and why to-day they survive only in pocket-size editions—that is something of which, until a few years ago, we understood nothing at all. Now at last we are beginning to realize that there was not one single cause, but that there were a large number of complicated and interacting reasons and that the Law of the Inevitable Top-Heaviness of Things, which rules all living matter, had a great deal to do with it.

You know what is happening to-day in the realm of arms. All the good intentions in the world and all the Leagues of Nations in the world are not half as important in making the world safe for reasonably inclined citizens as the plain, prosaic fact that the machinery of modern

war has grown so cumbersome, has become so incredibly top-heavy, that soon through sheer bulk it will no longer be able to float nor fly nor ride nor go on foot, but will be obliged to wobble and waddle and groan and grunt like a truck in the mire.

The creatures whose ridiculous skeletons grin at us to-day from the show-cases of those



爬行动物的世界

类的物种很长一段时期发展迅速，似乎地球会被爬行动物永久统治。由于那时的气候条件（请以几百年这个概念来考虑，彻

底忘掉历史书上的年代日期，它们在永恒的日历中只代表几秒钟）——湿度，当时的潮湿气氛极有利于庞大怪兽的生长，它们在水中和陆地上一样行动自由，宛如斗志昂扬的战舰。

我们也知道，在那个时候，无论是天空、水里，还是陆地，都无一例外成为怪兽的领土。它们身长40、50或60英尺，肚子大得像巨型游船的客舱。可是在随后的一个时期，在地球的任何角落，都找不到一只这样的巨兽。

地球早期的那些统治者是怎样耻辱地死亡的？为什么今天只存在袖珍版本？——关于这些，几年前我们还一无所知。现在，至少我们开始认识到这不是某一个因素的结果，而是存在着大量错综复杂的原因。世间存在这条法则：“一切事物都是不稳定的。”这句话很管用。

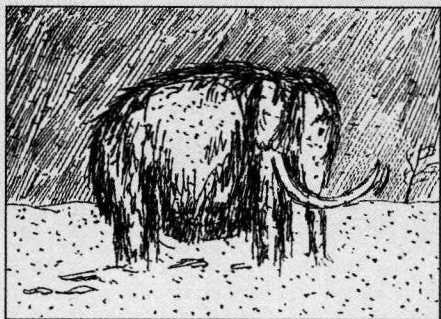
你们都知道今天在武器装备方面发生的事情。要想为善良的公民营造一个太平世界，世界上一切良好本意、一切国联，都比不上一个简单朴素的事实：那就是现代战争的装备已经变得如此庞大、笨重，用不了多久，它们就不能漂，不能飞，不能跑，也不能走，只能摇晃着蹒跚前行，气喘吁吁，就像陷入泥潭的卡车一样动弹不得。

这些生物大都经历着类似的发展过程。今天它们可笑的骨架陈列在博物馆（也

museums which are possessed of sufficient floor-space for such an exhibition went through a similar development.

They increased their size and strengthened their armaments until they could neither walk nor swim and were doomed to wade through the mud and slime of those endless marshlands which during that period of the earth's history covered so great a part of the world and which offered no more substantial fare than reeds and seaweeds.

Then when a change in the climate occurred (and sudden and violent changes in climate were more apt to occur then than they are now, owing to a more equitable division of oceans



垂死的猛犸象

and continents at the present moment), these slow-witted monsters could turn neither to the sea nor to the land in search of a new means of support. And so they were doomed to perish in such a thoroughgoing and efficient manner that of all the countless billions of saurians, which for so many millions of years were the undisputed masters of our planet, not a single one lived to see the coming of the great mammals and the final appearance of man.

That is the story as it is usually told, but I wonder whether it is the whole of the story—whether there is not another angle from which we have never looked at it and which is quite as

important as any of the usual excuses for their untimely demise.

Climatic changes no doubt exercise a very important influence upon the comfort and happiness of all living creatures, from microbes to mules.

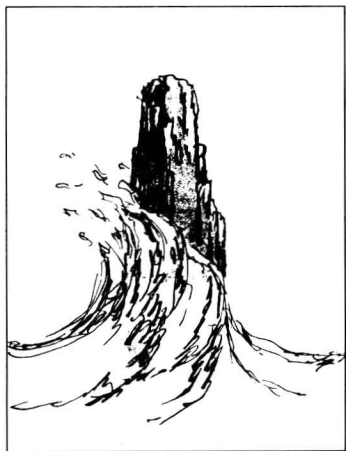
But climatic changes, unless they are so terrific that they amount to absolute

014 THE STORY OF INVENTION 发明的故事

只有在博物馆才有足够大的空间安放这些展品），朝我们咧嘴。

它们的身体逐渐庞大，体质越发强盛，直到既不能走，也不能游，在漫无边际的沼泽泥泞中举步维艰。在那段时期，地表大部分都覆盖着沼泽地，除了芦苇和海藻，没有真正可食用的东西。

然后，气候突然发生变化（过去气候骤变的情况比现在更加普遍，因为现在的



创世纪

海洋和陆地的分配比例比较合理）。这些智能低下的怪兽在海洋和陆地上都找不到新的生计，于是遭到了大规模的灭顶之灾。不计其数的爬行巨兽几百万年来都是地球上无可非议的主宰者，却没有一个能活着看到大型哺乳动物的诞生，以及人类的最终出现。

人们通常都是这样讲述这段历史的。但是我知道这是否就是全部的过程，是否还可以从我们未曾看到过的另一个角度来审视。这和导致动物们最终毁灭的一般原因一样重要。

从微生物到骡子，对所有的生物来说，气候的变化毫无疑问会对它们舒适和快乐的生活产生重大影响。

但是气候变化并不一定会致命，除非这种变化演变成可怕的灾难（像地球从前的卫星毁灭那样恐