



英汉对照读物

石油

Norman · Wymer 著

石油工业出版社

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内 容 提 要

英国 Longman 公司出版的通俗读物 “Longman Structural Readers”, 是专供外国学生学习英语用的。《Oil》是这套读物中的一本。它内容浅显、句式简单, 对初学英语者, 特别是其中从事石油生产的读者, 是一本很好的辅助阅读材料。

Longman Group Ltd. London 1972

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石油工业出版社出版

(北京和平里七区十六号楼)

大厂县印刷厂印刷

新华书店北京发行所发行

开本787×1092 1/32 印张 3 1/2 字数 76千字 印数1—7,800

1980年7月北京第1版 1980年7月北京第1次印刷

书号15037·2170 定价0.38元

出版说明

当前，为了向四个现代化进军，学习外语特别是学习英语的人越来越多了。为了帮助英语初学者提高学习兴趣，巩固已学得的外语知识，坚定继续深入钻研的决心，我们特地出版了这本英汉对照读物。

《Oil》一书选自英国 Longman 公司出版的一套通俗读物丛书——“Longman Structural Readers”。本书的特点是以有限的篇幅深入浅出地介绍了石油生产的基本知识，文体朴实，句式简单，并把专业词汇的数量控制在最低限度。原书是七十年代初出版的，其中所引用的统计数字不免较为陈旧，所介绍的生产技术也不能完全反映当前的水平，有的在细节叙述上不尽合理。我们认为，所有这些都无碍于读者的语言学习，因此一概不加改动。但对原文中过于不妥的段落和句子，我们作了必要的删节，图幅也删去了很大一部分。

译文基本上遵循“宁信而不顺”的原则，采取逐字直译的方式。这样做，译文中可能有不够流畅的地方，但相信对于读者正确理解原文是会有帮助的。出版这种中外文对照读物，在我们完全是一个尝试。希望读者提出宝贵意见，帮助我们改进工作。

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Chapter 1

WHAT IS OIL?

The oilfields began to form 400 million years ago. Parts of many countries were then under the sea. Very small animals — 'plankton' — lived in the shallow seas. Every year millions of these animals died and dropped to the bottom of the water. The rivers then brought tons of dead plants and mud down to the sea. The plants mixed with the plankton. The mud and salts then covered them and formed a sediment on the bottom. When the plants and plankton rotted, oil and gas began to form in the sediment. This was happening all the time; so the sediment of mud got deeper and deeper every year.

Water is very heavy. The pressure of the sea-water on the mud was very great. The pressure was so great that it made the mud hard. After a very long time the mud turned into rock — 'sedimentary' rock.

Sedimentary rock is soft and porous. It contains millions of little holes and passages — 'pores'; it can hold oil or water in these pores. All rocks are either porous or impervious. Impervious rock is very hard. It has no pores and so it cannot hold oil or water.

The sedimentary rocks held the oil and its gases for millions of years. But during that time very thick impervious rocks slowly formed above the sedimentary rocks. They made a roof over them and walls around them. The pressure of these hard rocks on the soft rocks below was very great. The lowest sedimentary rocks could not keep the oil in their pores because the pressures above were too great. The oil flowed slowly through the holes and passages, and rose into higher rocks. It rose higher and higher until it reached the impervious rocks. The oil could not escape

第一章 石油是什么？

油田开始形成是在四万万年前。许多国家的若干地区当时都还在海洋下面。浅海之中生活着极小的动物——“浮游生物”。每年都有无数这样的动物死去并且沉到海底。河流又把大量枯萎的植物和淤泥带下海去。植物与浮游生物混合在一起。然后，淤泥和盐分又把它们覆盖起来，于是在海底形成一种沉积物。当这些植物和动物腐烂时，沉积物中就开始生成油和气。这一过程不断地进行着。因此，淤泥沉积物逐年越积越深。

水是很重的。海水加在淤泥上的压力很大。这种压力是如此之大，以致使淤泥变得十分坚硬。经过很长一段时问，淤泥就变成了岩石，即“沉积岩”。

沉积岩是疏松而有孔隙的。它含有无数细微的缝缝洞洞——“孔隙”，它可以把油或者水保存在这些孔隙中。所有的岩石不是孔隙性的，就是非渗透性的。非渗透性岩石非常坚硬。它没有孔隙，因此不能保存油或者水。

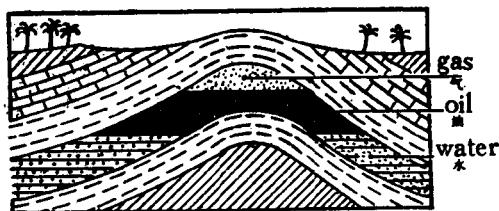
沉积岩把石油和石油气保存了千千万万年。但是在这漫长的过程中，沉积岩上面逐渐构成了厚实的非渗透性岩层。这种非渗透性岩层在沉积岩上面盖起“屋顶”，又在沉积岩周围筑起“墙壁”。这些坚硬岩层对下面松软岩层施加的压力非常之大。最下层的沉积岩再也不能把石油保持在自己的孔隙中，因为上面的压力太大了。于是，石油缓慢地流过缝缝洞洞，升入部位较高的岩层中去。它越升越高，直至碰到上面的非渗透性岩层，石油再也不能通过这些坚硬的岩层而逃跑。就这样，石油被捕

through these hard rocks; so it was caught in a trap — an 'oil-trap'.

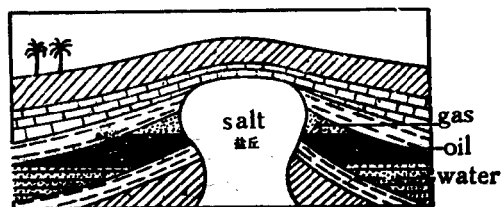
Oil is always found in a trap under impervious rock. The oil-traps have different shapes. In some traps all the rocks may be flat and straight. In other traps the rocks may curve. There are four chief kinds of oil-trap: the 'anticline', the 'salt dome', the 'fault', and the 'stratigraphic' trap. The pictures show their different shapes.

When the oil was in the sedimentary rock, it contained gas and water. The oil, gas and water were all together. But in the oil-trap they are all in separate parts of the rock. The water stays at the bottom because it is the heaviest. The oil rises higher and lies on the water. The gas is the lightest; so it rises to the top and lies on the oil.

背斜圈闭



盐丘圈闭



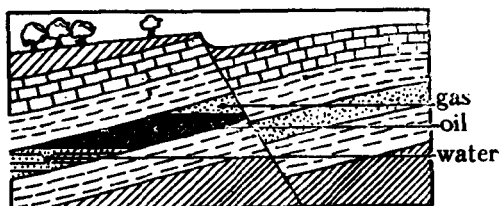
Many oilfields are between 1,000 and 1,500 metres deep. But some are 3,000 or 6,000 metres deep. An American oilfield in Louisiana is the deepest in the world; it is almost six and a half kilometres below the ground.

获在一个“陷井”即“石油圈闭”之中。

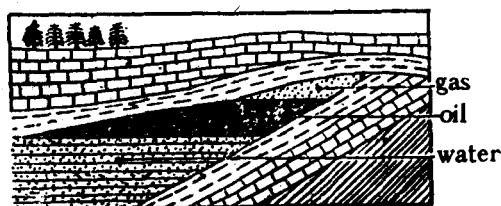
石油总是存在于非渗透性岩层下面的圈闭当中。圈闭的形状各有不同。在有些圈闭中，所有的岩层可能是平而直的。在另一些圈闭中，岩层可能是弯曲的。圈闭有四种主要类型：背斜圈闭，盐丘圈闭，断层圈闭和地层圈闭。下列各图表示圈闭的不同形状。

当石油存在于沉积岩中时，它含有气和水。油、气、水三者都在一起。但在石油圈闭中，它们却是分开的，各自处在岩层的不同地方。水留在底部，因为它最重。油上升到较高的地方，位于水的上面。气最轻，因此升到顶部，位于油的上面。

断层圈闭



地层圈闭



许多油田的深度是在一千米到一千五百米之间。但是，有的深达三千米或者六千米。美国路易斯安那州的一个油田是世界最深的。它在地下的深度差不多有六公里半。

How do we get oil out of the ground? Men drill a deep well. They cut a hole through the hard, thick impervious rock. They drill deeper and deeper until they reach the sedimentary rocks. With great care they cut through the impervious rock. They open the oil-trap which contains the oil. The oil then begins to rise up the well. Usually the water in the trap makes the oil rise; the great pressure pushes the oil up the well.

Some oilfields are very small and unimportant; they have very little value. Other fields are very large and have great value. The Ghawar oilfield, in Saudi Arabia, is one of the largest in the world; it is 200 kilometres long.

The condition of oil is not the same in all places. In some fields the oil may be thick and dark; in others it may be quite thin and clear.

All the oilfields in the world began under the sea. There are still many large and important oilfields under seas and lakes. But most oilfields are now under dry land, because the earth's shape changed while the oil was forming in the rocks. Many things happened during those millions of years. In some parts of the earth dry land went under the sea, in other parts great pressures below pushed up the land. The land rose above the water and the shallow seas flowed away or dried up. So the oilfields in these parts are now under dry land.

The deserts around the Arabian Gulf, in the Middle East, are good examples. The Sahara Desert, in North Africa, is another example. Millions of years ago these deserts were under the sea. Oil formed in the mud below the water. The shape of the earth then slowly changed. The sea went away and left great deserts of sand. Today the oilfields under these dry and dusty deserts are some of the richest in the world.

Perhaps new oilfields are forming under some of the seas today.

我们怎样把石油从地下弄出来呢？要钻一口深井。人们通过坚硬厚实的非渗透性岩层钻出一个井洞。他们越钻越深，直到钻达沉积岩。他们小心翼翼地打穿非渗透性岩层。他们打开含有石油的圈闭。于是，石油开始上升到井眼里。通常是圈闭里的水驱使石油上升。巨大的压力推动石油从井中上升。

有些油田很小，意义不大。它们没有什么价值。有些油田很大，很有价值。沙特阿拉伯的加瓦尔油田是世界上最大的油田之一。它长达二百公里。

石油的状态并不是到处都一样。在有些油田里，石油可能是稠厚的，呈暗色。在另一些油田里，石油又可能是稀薄的，很清彻。

世界上的所有油田开始都是在海洋下面形成的。至今还有很多大油田依然处于海洋和湖泊的下面。但是，多数油田现在是在干燥的陆地下面，因为当石油在岩层中生成的时候，地球的形状已经改变了。亿万年间，沧海桑田。在地球的有些地方，干燥的陆地沉没到水下；而在另外一些地方，地下巨大的压力又把陆地推举起来。陆地伸出水面而浅海则消退或者干涸。因此，原来这些地方的油田现在是在干燥的陆地下面了。

中东阿拉伯湾周围的沙漠最能说明这个问题。北非的撒哈拉大沙漠是另外一个例子。千百万年前，这些沙漠都在海里。石油就在海水下面的淤泥中生成。后来地球的形状慢慢发生了变化。海水消退，留下了大片沙漠。今天，在这些干燥的尘埃弥漫的沙漠下面，蕴藏着世界上若干最富饶的油田。

很可能，就在今天的一些海洋下面，新的油田正在形成呢！

Chapter 2

THE OIL REGIONS OF THE WORLD

There are five chief oil regions in the world. They are the Middle East; the United States of America and Canada; Latin America and the Caribbean; North Africa; and Russia. There are also many smaller oil regions in different countries.

The Middle East countries have the largest amount of oil. They have more oil than all the other regions together.

Oil was first discovered in the Middle East in 1908. The first oilfield was opened in Iran — the famous Masjid-i-Sulaiman field. A few years later men found oil in other Middle East countries. But they did not produce much oil at that time because nobody knew the size and value of the oilfields. Then in 1932 oil was discovered on Bahrain Island. The men who discovered this oil said: "If Bahrain has oil, there may be a lot of oilfields in and around the Arabian Gulf."

Immediately men began to search for oil in the countries around the Gulf. During the next few years oil was found in many places. The Middle East oil industry then grew fast.

Today this region produces one third of the world's oil supplies. The world uses 2,000 million tons of oil a year — and the Middle East supplies a third of this amount.

Most of the oilfields are in four countries — Saudi Arabia, Kuwait, Iran and Iraq — and under the Arabian Gulf itself.

Saudi Arabia's chief oilfield is the great Ghawar field, between Ain Dar and Haradh. Many of this country's rich oil deposits were discovered after the Second World War. In 1946 Saudi Arabia produced only eight million tons of oil. During the next twenty years many large and important oil deposits were discovered. Production rose quickly and today Saudi Arabia is producing more than 100 million tons a year.

第二章 世界上的产油区

世界上有五大产油区。它们是：中东；美国和加拿大；拉丁美洲和加勒比海；北非；俄国。此外，在不同的国家里，还有许多规模较小的产油区。

中东国家拥有的石油最多。它们的石油比其他所有地区的石油的总和还要多。

中东最早发现石油是在一九〇八年。第一个油田是在伊朗开发的著名的马斯杰德苏莱曼油田。几年以后，人们在其他中东国家也找到了石油，但是当时产量不高，因为没人了解这些油田的大小和价值。后来，到了一九三二年，在巴林岛上发现了石油。发现这里石油的人说：“如果巴林有石油，那么，阿拉伯湾和周围地区可能会有许多油田。”

人们随即开始在海湾周围的那些国家里勘探石油。在这以后的几年中，许多地方都找到了石油。中东石油工业于是迅速发展。

今天，这个地区生产世界石油供应量的三分之一。全世界一年用油二十亿吨，中东就供应这个数量的三分之一。

多数油田是在四个国家即沙特阿拉伯、科威特、伊朗和伊拉克境内以及在阿拉伯湾下面。

沙特阿拉伯的主要油田是加瓦尔大油田，位于艾音达尔和哈拉德之间。这个国家的许多丰富的油藏都是第二次世界大战以后发现的。一九四六年，沙特阿拉伯只生产八百万吨石油。在以后二十年发现了许多重要的大油藏。产量迅速增长。今天沙特阿拉伯的石油年产量超过一亿吨。

Kuwait is a very small country, but her oil production is almost as high as Saudi Arabia's. Most of her oil comes from the oilfield at Burgan. This may be the richest oilfield in the world.

Oil production in Iran and Iraq is also very high. One quarter of Iran's oil comes from the Agha Javi field. Iraq's chief oilfield is at Kirkuk. This field, in the middle of deserts, is one of the most famous oilfields in the world.

Other countries around the Arabian Gulf also produce some oil. During the last few years men have discovered important oilfields along the Trucial coast. One Trucial State, Abu Dhabi, is already beginning to produce a lot of oil.

The Arabian Gulf is the chief oil centre. But there are oilfields in many other parts too. Twelve Middle East countries are now producing oil.

The Middle East oil industry has grown very fast since the war. In 1946 the Middle East produced only one-tenth of the world's oil supplies. Then suddenly production began to rise. After the war, most countries began to use more oil; they needed more and more every year. So oil production rose in every region. But it rose faster in the Middle East than in the other regions. What is the result? Today the world is using five times as much oil as in 1946 — and the Middle East now produces a third of the supplies.

The Middle East countries now export more oil than any other region. They do not need much oil for their own use. So they are able to export most of their oil to other countries. Europe is one of their chief markets. They supply all the countries of Western Europe and also some of the countries in Eastern Europe. These European countries have very little oil themselves. So they have to import millions of tons from other countries. They import some of their oil from North Africa and Latin America but they buy most of it from the Middle East.

The United States oil industry is the oldest in the world. Drilling for oil began in America. The world's first oil well was drilled in a small Pennsylvanian town, Titusville, in 1859. Before that date no country had an oil industry. When

科威特是一个很小的国家，但是它的石油产量几乎和沙特阿拉伯一样高。它的大部分石油产于布尔干油田。这个油田可能是世界上储量最丰富的油田。

伊朗和伊拉克的石油产量也很高。伊朗石油的四分之一产自阿加贾里油田。伊拉克的主要油田在基尔库克，这个油田位于沙漠中央，是世界上最著名的油田之一。

阿拉伯湾周围其他国家也生产一些石油。过去几年中，人们在阿曼半岛沿岸已发现了一些重要的油田。阿曼半岛的一个酋长国阿布扎比，已经开始生产不少石油。

阿拉伯湾是主要的石油中心。但在许多别的地区也有油田。现有十二个中东国家生产石油。

第二次世界大战以来，中东的石油工业发展很快。一九四六年，中东只生产世界石油供应量的十分之一。以后产量开始猛增。战后，多数国家都开始使用更多的石油。它们需要石油一年比一年多。因此，每个地区的石油产量都增长了。但是，在中东比在别的地区增长得更快。结果是什么呢？今天世界上使用的石油为一九四六年的五倍，而中东现在生产的石油是总供应量的三分之一。

现在中东国家出口的石油比别的任何地区都要多。它们自己不需要用许多油，因此它们能够把它们的大部分石油出口给别的国家。欧洲是它们的一个主要市场。它们向所有的西欧国家，也向某些东欧国家提供石油。这些欧洲国家自己没有什么石油。所以它们不得不从别的国家进口大量石油。它们从北非和拉丁美洲进口一些石油，但大部分是从中东购买的。

美国石油工业是世界上最老的。打井找油始于美国。世界上的第一口油井是一八五九年在宾夕法尼亚的一个叫泰特斯维尔的小镇上打的。在这以前，没有一个国家有石油工业。当人

people wanted oil, they looked for pools on the ground. Where did the pools of oil come from? How did the oil rise above the ground? It climbed through 'faults' in the impervious rocks. Rocks over an oil-trap are sometimes broken in a few places. Oil then usually flows out of the trap and escapes through the faults. It rises to the top and forms a pool on the ground. People used to draw the oil from a pool. They waited until the pool filled up again. Then they drew some more oil.

The name of the man who drilled the first well was Edwin Drake. Drawing oil from pools was too slow for Drake; so he decided to try to get oil straight from an oilfield. People said that this was not possible. "You will never drill a well through the impervious rock," they said. "The rock is too hard and the oil is too deep." Drake did not listen. He used a heavy metal tool to cut through the rock. This 'cable tool' moved up and down and slowly made a hole in the ground. Drake drilled for many months. Then, at last, he broke through the rocks and reached the oil. As soon as he opened the oil-trap, the oil began to flow up the well. Drake was soon producing a lot of oil — and everybody wanted to buy it.

People were very excited. Hundreds of Americans immediately rushed to drill oil wells. They all wanted to make money too. "If we find oil, we'll soon be rich," they thought. They found oil in many places.

So America's oil industry — the first in the world — began.

The Gulf of Mexico and the States of Texas and Louisiana form the chief centre of the United States oil industry today. There are rich oilfields along the coast and also under the sea. Texas, the largest American oil state, has as many as 600 oilfields.

America has fifty states, and forty of them produce oil. Now men have found oil in Alaska. This state is very cold and wild. The oilfields are in a desert, and snow and ice often cover the ground. The men who are drilling the wells are living and working in terrible conditions. They have to wear special clothes in order to keep themselves warm. Pro-

们需要石油的时候，他们在地面上寻找天然的油池。这些油池是从哪里来的呢？石油是怎样上升到地面上来的呢？它是通过非渗透性岩石中的“断层”攀登上来的。石油圈闭上面的岩层有时在一些地方发生断裂。这时石油往往从圈闭中流出，并通过断层逃跑。它上升到顶部便在地面形成一个天然的油池。人们过去常从油池中捞油。他们等着，直到池里再次蓄满了油，然后他们再从中捞取更多的油。

打第一口油井的人名叫埃德温·德雷克。德雷克认为，从油池中捞油是太慢了。因此，他决定尝试直接从油田中搞油。人们说这是做不到的事。他们说：“你永远也不可能穿过非渗透性岩石打出一口井来的。岩石太硬了，石油埋藏太深了。”德雷克没有听信这些。他使用一个笨重的金属工具穿凿岩石。这个“顿钻”钻具，一上一下地运动，慢慢在地上冲出了一个井洞。德雷克钻了好几个月。后来，他终于钻穿了岩石，打到了油层。他一顿穿圈闭，石油便从井中流了出来。德雷克很快就开采了大量石油，而且人人都想买它。

人们非常兴奋。大批美国人立即争先恐后去钻油井。他们也都想发财。他们想：“只要我们搞到油，我们很快就会成为富翁。”他们在很多地方都找到了油。

就这样，美国的石油工业——它是世界上最早出现的——开始兴起了。

墨西哥湾、得克萨斯州和路易斯安那州构成今天美国石油工业的主要中心。海湾沿岸一带陆上及海下都有丰富的油田。得克萨斯州是美国最大的产油州，拥有油田达六百个之多。

美国一共有五十个州，其中四十个州产油。现在人们在阿拉斯加已经找到了石油。这个州寒冷而又荒凉。油田在沙漠里，地面经常被冰雪覆盖。钻井的人要在极其恶劣的条件下生