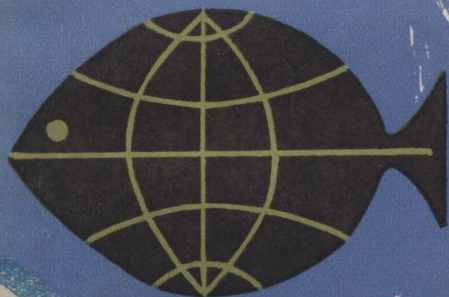


**THE
OCEAN
WORLD**

英语科普注释读物

037611



海洋世界

上海译文出版社

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THE OCEAN WORLD

海洋世界

弗拉基米尔·科瓦里克

原著

纳达·科瓦里克

杰奎琳·克拉特·库珀

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前 言

洋面上的热能，洋底下的矿藏，汪洋中的生物，海底的珍宝，海水的变幻，海潮的威力……这一切潜力，谁不想用来为人类服务。被称为“聚宝盆”的海洋，将是人们进一步探索和开发的广阔领域。

《海洋世界》是由 Vladimir 和 Nada Kovalik 原著，经 Jacqueline Klat Cooper 改写的阶梯读物，并由 Washington Square 出版社出版（1973 年第 3 版）。改写本以两千个常用词汇和常用句式，深入浅出地介绍了海洋学的基本知识，它将有助于已具有英语基础（掌握 1,200 常用词汇和词组，学过基本时态、复句和非谓语动词）的读者，巩固英语知识，提高阅读和理解能力。

张云皋

一九八〇年十月

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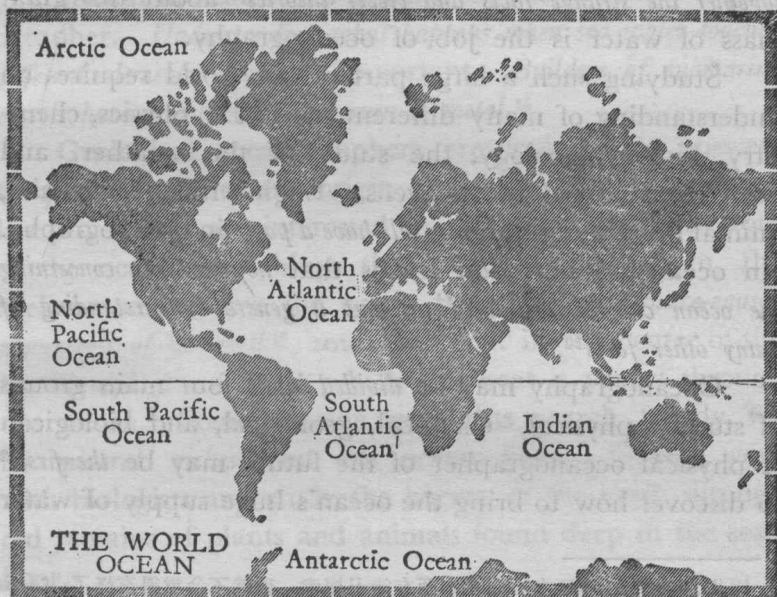
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1. The Sea and How We Explain Its Mysteries

The vast, almost unknown sea seems to dare an oceanographer to study its mysteries and discover its truths.¹

Young people who are interested in the story of the great world ocean² will find oceanography an occupation in which the best is yet to come³. For⁴ in the next 20 to 30 years, oceanography will develop more than any other kind of learning. Thousands of new jobs⁵ will await men and women



1. 浩瀚而人们所知甚少的海洋，仿佛激发海洋学家去研究它的奥秘，揭开它的真面貌。 to dare sb. to do sth: 量某人不敢做某事。本书中 sea 和 ocean 往往交替使用。 2. 世界性海洋。 3. 发现海洋学是一门虽未成为但必定会成为的最好专业。 the best = the best occupation. 4. 因为。并列连词，阐明上句的理由。 5. 数以千计的新工作。

who want to learn more about the ocean.

The sea is the largest unknown part of our world. It covers 71 percent of the earth. *It is not surprising, therefore, that there is so much still to be discovered about this vast blanket of water.*⁶ We sometimes find we do not know everything regarding the 29 percent of the earth that is dry land.

*We must realize that there is only one ocean, a world sea in which all the waters meet.*⁷ The world ocean is owned by no one; it surrounds the earth and belongs to us all. *Putting together the strange facts and clever theories*⁸ about this giant mass of water is the job of oceanography.

Studying such a large part of our world requires an understanding of many different sciences: physics, chemistry, biology, geology, the study of the weather, and even the study of the heavens. Engineering, electronics, animal life, fishing, mining, *all have a part*⁹ in oceanography. An oceanographer soon learns that *no one fact concerning the ocean can be explained without a general understanding of many other facts*¹⁰.

Oceanography may be *divided into*¹¹ four main groups of study: physical, chemical, geological, and biological. A physical oceanographer of the future may be *the first*¹² to discover how to bring the ocean's huge supply of water

6. 因此, 这大片汪洋还有这么多东西有待于探索, 也就不会觉得奇怪了. "It is + (要强调的句子成分) + that/who/... 从句" 是强调结构. 其中 It 是形式主语, 从句才是真实主语. 7. 我们必须认识到, 只有一个海洋, 一个万水会合的世界之海. 有定语从句的 world sea 申述 only one ocean, 两者是同位语关系. 8. 整理新异的事实和精辟的道理. 9. 都起作用. 10. 倘若没有对别的大量事实的一般了解, 有关海洋的某一事实就得不到解释. 11. 被分成. 12. 即 the first oceanographer, 后面的动词不定式短语是它的定语.

to the dry deserts of the world. By studying the temperatures, currents, tides, and waves of the ocean, and also the exchange of heat and moisture between the ocean and the air, the physical oceanographer may discover the answer to weather control.

Many oceanographers are studying the ways in which sound travels and is affected by water and heat.

The chemical oceanographer must discover the secrets of sea water. Ocean miners, biologists, and all those who hope to *benefit from*¹³ the huge amounts of ocean plant and animal life can learn much from the chemical oceanographer. *Understanding what happens when sea water touches different elements*¹⁴ is also important. *Builders of submarine vessels have to guard against ruin to metal.*¹⁵

Geological oceanographers are looking for answers to questions about the origin and form of the world we live in. They are interested in the shape of the bottom of the ocean, the things that drop to the bottom, the rock on and below the ocean floor, *the earthquake-caused movements of the earth*¹⁶, sources of heat in the center of the earth, and the ways in which this heat is passed through the ocean. Some marine geologists search mostly for *the mineral riches*¹⁷ on the ocean floor. Others work with biologists and study the history of the earth through old remains of plants and animals found deep in the sea's floor.

Biological oceanographers study the plants, animals, and *strange sea bodies*¹⁸ which do not seem to belong to any

13. 因……而得益。 14. 了解海水碰到不同元素时所产生的反应。 15. 潜水艇制造者必须预防金属腐蚀。 guard against: 防止。 16. 由地震造成的地球运动。 17. 矿藏。 18. 新异的海洋物体。

group. From marine biology comes information that helps fishermen catch fish. This information may in the future increase the supply of food from the sea so that *human beings will never again die from hunger*¹⁹. Marine biologists also study the strange production of light and electricity by some marine animals, the ways in which underwater sounds are affected by sea life, and *the prevention of harm done to ships by*²⁰ very tiny sea animals. Weather science is often considered to be a marine science, because the ocean is so important in establishing climate and weather conditions.

MAN-MADE OBJECTS

Oceanographers are developing *the use of man-made objects sent into space to tell future weather conditions and help shipping*²¹. Oceanographers also follow the movements of radioactive materials in the ocean. *What effects do nuclear wastes have on*²² marine life and even on the land creatures of the world? *How much time passes before the nuclear remains in the deepest parts of the ocean return to the surface?*²³ The nuclear physicist and the oceanographer both wish to find the answers to these questions.

Marine engineering is very important to the oceanographer. Without marine engineers to build ships and

19. 结果人类决不会再饿死. human being: 人类. die from: 因……而死亡. 20. 对由……造成对船只的损害的防止. do harm to sth.: 危害某物. 21. 为了预告气象情况和帮助航行, ……使用射入太空的人造物体(指气象卫星之类). 22. 原子废料对……产生什么影响? 23. 海洋最深处的原子残余要经历多久才返回洋面呢?

underwater instruments, the oceanographer would not be able to develop his studies of the sea.

Mathematicians, too, are needed in the ocean sciences to explain facts *supplied by the electronic machines*²⁴. The study of ancient remains is also important in discovering man's history. Specialists *search the ocean floor for old remains of ships and even cities*²⁵. They study objects and pieces of art made by men one or two thousand years ago.

Some oceanographers work quietly in a room filled with research information. *Others go on oceanographic voyages*.²⁶ It may be a voyage of discovery; it may be a search for answers to physical and biological questions. Or it may be to find the exact shape, temperature, and salinity of sea water in a particular area. After studying their findings, scientists make maps that will *help in*²⁷ telling future weather, locating fish, and guiding ships.

Although in the United States there are *few*²⁸ women oceanographers who go on such voyages, they are taking part more and more in ocean work. Women are scientists, research and laboratory workers, and sometimes even underwater divers.

*New as the science of oceanography is*²⁹, it has grown in the United States since World War Two. The leading nations in oceanography are the United States and Russia, although Great Britain, Japan, Germany, and the Scandinavian countries are also doing important work.

24. 由电子仪器提供的。 25. 在洋底搜寻古船遗骸, 甚至古城遗址。 26. 另一些作有关海洋学方面的航海活动。 go on a voyages: 航海。 27. 在……方面有帮助。 28. few: 语者从否定角度讲“少”, 意为“几乎没有”。 a few: 语者从肯定角度说“少”, 意为“极少几个”。 29. 虽然海洋科学是新兴的。

The United States has about 4,000 workers in oceanography. By 1970, American oceanographers may number 6,000 or more. About 30 American universities *have classes in advanced oceanography*³⁰.

SHIPS AND SEARCHES

Ships and laboratories are most important for gathering information about the ocean. More than 150 American ships do this work. Aside from the government, private schools and societies also have their oceanographic boats. The oceanographic fleets include all kinds of ships. But probably the most exciting development has been in deep-sea research. By 1975, the United States plans to build a small fleet of boats *able to dive to the deepest known parts of the world ocean*³¹, *more than 36,000 feet beneath the surface*³².

Private business groups, too, are building their own valuable oceanographic fleets. The General Motors Laboratories operate a ship that has a complete electronics laboratory for research in underwater sound. With its newest and most modern instruments, the ship can mark its position near a lonely coast *with an error of only two inches*³³.

The cost of studying the ocean is great. An ocean research ship costs from 500 dollars to 3,500 dollars a day to operate. In 1965, the United States spent 138,000,000 dollars on oceanography. One way to reduce the great costs *would*³⁴ be for countries to work together.

But there are big problems that must find answers before na-

30. 开设高级海洋学课。 31. 能潜到世界性海洋的, 已探明的最深处的……

32. 离洋面 36,000 多英尺。补充说明 deepest 的程度。 33. 误差仅仅二英寸。

34. 使语气委婉, 表示个人看法。

tions can share what they know of the sea and its gifts.³⁵ The sea could become an area where nations work with one another, or it could become the scene of fierce battles over fishing and mining³⁶. United States submarines follow Russian boats that are seen near American shores. And by the coast of Iceland the British fleet guards British fishermen against possible attacks by Icelanders³⁷.

These situations may lead to trouble³⁸, and some nations have tried to make rules as to how far their own waters extend³⁹. Although 86 countries met in Geneva to discuss this, they could not agree. The United States and 24 other countries kept a threemile limit⁴⁰, others a 12-mile limit. Peru claimed 200 miles of the ocean from her coast.

Nations have found it easier to share what they know of the ocean than to share their fish. As long ago as⁴¹ 1850, the Smithsonian Institution in the United States started making a world weather map, with the help of information from ships and scientists in all parts of the world.

At the beginning of the 20th century, many scientists began to realize that some marine animals would soon cease to exist⁴² if they were not protected. Fur coats made from the skin of some sea animals were so popular

35. 可是, 在各国分享海洋情报资料及其资源以前, 尚有须待获得解决办法的重大问题. 本句结构为: but 转折上段之 work together, problem 有定语从句修饰, before 引导的时间状语从句修饰主句, 其中, what (也是 know 的宾语)引导的是 share 的宾语从句. gift, 这里喻指资源. 36. 在捕渔和采矿问题上 (引起) 激战的场所. scene n. 午台, 这里喻指出事地点. battles 后省去 "which would arise". 37. 防范冰岛人可能袭击英国渔民. guard ... against ...: 使……受护而免遭……. 38. 引起争端. 39. 试图制定关于本国海域延伸多远的规定. 40. 保持三海里为界限. 41. 远在……. 42. 不复存在.

that the waters where the animals were caught were red with blood⁴³. But after a meeting in 1902, nations agreed to limit their catches of these animals.

In 1919, physical researchers established a world association of physical oceanographers. The following year the United States organized a world group *whose job it was to find icebergs*⁴⁴. The work of this group has greatly reduced the number of accidents that have occurred in darkness and bad weather.

After World War Two, nations became very much interested in working on problems together. The United Nations organization and several oceanographic groups were formed. These groups are using information supplied by scientists and fishermen in all parts of the world to produce a world fish map.

A world organization on weather hopes one day to have a radio station that would report weather and serve all nations. But for the moment, the atomic age is creating problems. A world atomic energy association is worried about the large amount of radioactive wastes that have been thrown into the ocean. Scientists from many countries are measuring *radiation levels*⁴⁵ and trying to discover how and where radioactive materials are distributed in the moving waters of the sea.

In 1959, 2,000 scientists from all parts of the world met at an oceanography congress. After this meeting several huge and very important studies were made of areas of the Atlantic and Indian oceans. Scientists have

43. ……如此流行,以致兽血染红了捕兽区的海水。 44. 发现冰山就是他们的职责。 it 是 to find 的先行词。 45. 辐射水平。

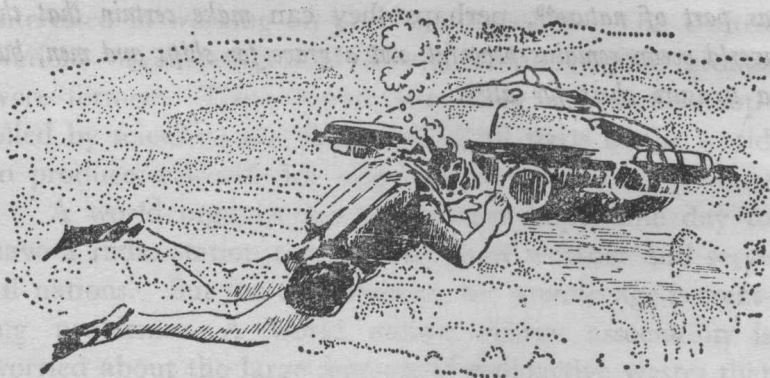
been the first to realize that the ocean is too vast for any one nation to study or understand completely.

The idea that science belongs to humanity and not to separate governments⁴⁶ is gradually being recognized. Study of the ocean, which touches almost every land⁴⁷, is helping to make this idea understood. Economists and other scientists, men who know politics and world law, will need to understand the great possibilities the sea has to offer if the sea is to be used fully and to the greatest advantage for all men.⁴⁸ If they can forget the narrow attitudes of world politics and consider the sea as part of nature⁴⁹, perhaps they can make certain that the world ocean remains peaceful, not a grave for ships and men, but a treasure chest for all⁵⁰.

46. 科学属于人类而非各别政府的想法。47. 它几乎涉及一切国家。which 前有逗号分隔，是非限制性定语从句，作为附带说明。48. 假如海洋定要让全人类充分而最优惠地利用，那末，经济学家、其他科学家和懂得政治和国际法的人们就需要了解海洋须提供的巨大可能。49. 把海洋看作自然的一部分。50. 确保世界性的海洋依然和平，不成为舰艇和人类的葬身之地而成为全人类的宝库。make certain that: (把)……弄确实。not..., but...: 不……而……

2. What Happened Earlier

When did man first use diving equipment? Almost 2,900 years ago people in Asia were experimenting with methods to supply air to underwater swimmers. Pictures made in those days show men swimming under the surface *with air bags tied to their bodies, and from the bag a pipe carried air into the swimmer's mouth*¹.



Man was interested in the sea long before the science of oceanography developed. But his information was limited until he was able to invent ways of living and working beneath the water. The history of oceanography, therefore, has been very much *connected with*² the history of diving and underwater travel.

*With their love of war*³, men early in history made a

1. 每人身上缚着一只空气包, 而且各有一根管子使包里的空气输进嘴里. 由 and 连接的介词短语(名词用单数形式), 详述 bag 与 mouth 的关系. 2. 与……联系. 3. 由于好战.

battleground of the undersea world. Nearly 2,700 years ago a young Greek diver plunged underwater *to cut the ropes with which the Persian enemies had tied their ships*⁴. Then he tied ropes from the boats to the shore so that the ships could be pulled to the beach and the Persians⁵ killed. The Greek king was very pleased!

But until men invented ways to stay underwater for more than a few minutes, only those living along coasts and diving for seafood knew the wonders of the underwater world. Little progress was made in the invention of diving devices until about the year 1490. A famous Italian painter, Leonardo da Vinci, designed not only a device for breathing underwater, but also a complete diving suit.

In 1680, an Italian professor, Giovanni Borelli, invented a large air bag with a glass window to be worn over the diver's head. *To "clean" the air*⁶, a breathing pipe went from the air bag, through another bag to remove moisture, then again to the large air bag. The plan did not work, but it helped later designs for movement of air in diving devices.

Cornelius van Drebel of Holland first tried to use manpower in an underwater ship he designed for the English Navy in 1620. The boat was made of wood *with a covering of leather*⁷ that was rubbed *with oil to keep the water out*⁸. A dozen men rowed the boat with poles that extended into the water through *water-tight holes*⁹. *King James must have been*¹⁰ a very brave man, because he went for a

4. (企图) 割断波斯敌军用以系牢船只的缆绳. 5. 省去 could be. 6. 为使空气“净化”. 7. 有皮革外罩的. with 表示有某种附属物或特征. 8. 为防渗水而涂上油料的. with 表示用……材料、手段. 9. 水密孔. 10 詹姆士王谅必已……

ride in this unusual ship 15 feet below the surface of the Thames River.

It was an American, David Bushnell, who first showed the frightening possibilities of the submarine during the American war against the British in 1776¹¹. He built a wooden ship that would sink when a device was opened to let water in. *Another device emptied the ship of water*¹² so that it could rise to the surface when¹³ desired. The boat had the shape of an egg and was operated *by hand*¹⁴.

An American soldier offered to take the boat underwater with its half hour's supply of air and *fasten a can of gunpowder to*¹⁵ the bottom of a British ship in New York harbor. On a September night in 1776, the soldier made his brave attempt. Though he worked with all his strength, he could not *cut through the hard metal covering*¹⁶ on the bottom of the ship. But his effort *lives in history as*¹⁷ the first time a submarine was used in war.

NEW DIVING SUITS

At about the same time, men were also experimenting with diving suits and head coverings for use underwater. In 1819, Augustus Siebe, a German, *thought of forcing air into the head covering by a machine operated above water*¹⁸.

In 1837, Siebe finally invented the "*hard-hat suit*,"¹⁹ which was to be used for almost a century. The suit was

11. 指美国独立战争。 12. 另一装置把一船水倒空。 13. 省去 it was.
14. 徒手。 15. 把一桶炸药紧系在……上。 16. 炸穿坚硬的金属护罩。 17. 作为……永垂史册。 18. 想到用水上操作的机器将空气压进护头罩里。 19. “防护帽潜水衣”。