

BASIC SCIENCE SERIES

自然科学初级读物

15

LIFE IN THE SEA

海洋中的生物

西世良 译



科学普及出版社

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出 版 说 明

当前，在实现四个现代化的新长征途中，广大青少年正在努力学习现代科学文化知识，为祖国的社会主义建设事业，增长才干，积蓄力量。编译出版《自然科学初级读物》的目的，就是为初学自然科学和英语的读者，提供一套浅近而有趣的参考书籍。

全套读物共有16个选题，细目见各书封底。英语部分采自 FEP INTERNATIONAL PRIVATE LIMITED 出版的 BASIC SCIENCE SERIES (修订版)。

为了便于阅读，对全书重新作了编排，绘制了插图，并附了参考译文。书中还配有相当数量的简单实验，使读者通过实验，加深理解有关科学内容。

由于编者水平所限，错误不当之处在所难免，请批评指正。

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BASIC SCIENCE SERIES — BOOK 15

自然科学初级读物——第15册

LIFE IN THE SEA

海洋中的生物

西世良

江乃萼

李冬伟

张伟

吴贵鹏

译
校

插图



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INTRODUCTION

The sea occupies a greater area of the Earth's surface than the land. It is the home of millions of living things. Animals and plants of various shapes, colours and sizes live in the sea. Do you know that there is more life in the sea than on land?

The animals and plants of the sea are very important to Man as a source of food. Sea animals like lobsters, crabs, fishes and many shellfishes can also be eaten. Some sea plants, like seaweeds, are also used as food.

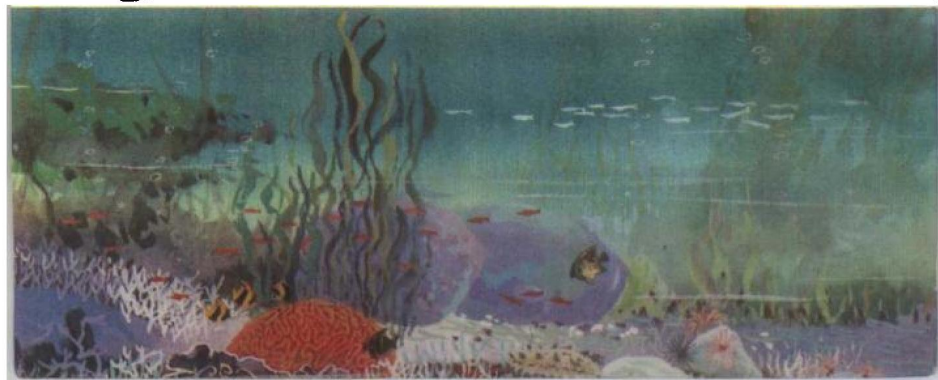
If you ever go skin diving, a scene like the one below might meet your eyes.

引 言

在地球表面，海洋占的面积比陆地更大。海洋是数以百万计的生物之家。千姿万态、五颜六色、大大小小的动物和植物生活在海洋里。你知道，海洋里的生物比陆地上的多吗？

海洋里的动物和植物是人类食物的重要来源。海洋动物象龙虾、蟹、鱼和许多贝类也可以食用。有些海洋植物，如各种海藻，也可用作食物。

如果你什么时候潜水入过海，就可能看到象下图那样的景色。

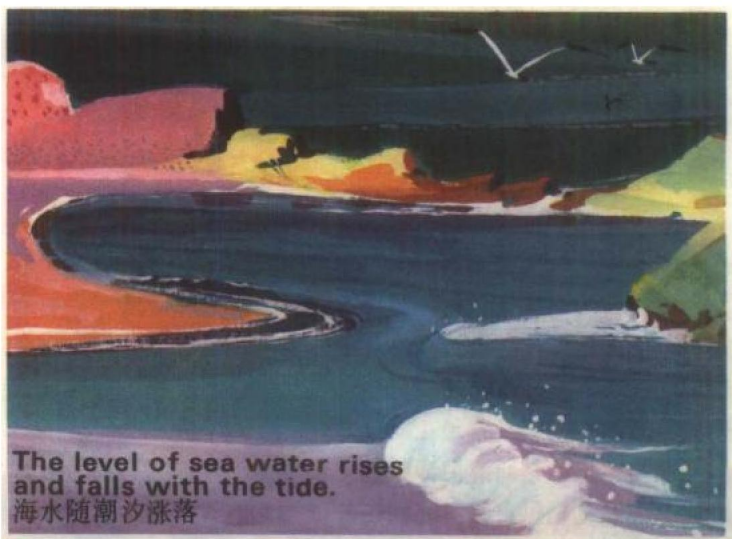


THE SEASHORE

The seashore is the place where the land meets the sea. At certain times of the day the level of sea water rises. When this happens we say that it is **high tide**. When the level of sea water goes down, it is **low tide**. The area of the seashore between the high tide mark and the low tide mark is called the **intertidal region**. Many kinds of unusual plants and animals live in this region.

海 滨

海滨是陆地与大海相接之处。每天海水的水面按时上涨，出现这种情况时，我们说涨潮。海水水位下退时，就是退潮。在涨潮线和退潮线之间的海滨地带叫做潮间带。许多不寻常的植物和动物就生活在这一地带。





PLANTS OF THE SEASHORE

The plant life of the shore consists mainly of different types of **algae**. Two forms of algae exist — the drifting algae and the fixed algae. The drifting algae are very small. Many of them consist only of one cell. However they can still grow like any ordinary plant by taking in water, minerals and carbon dioxide. The fixed algae or **seaweeds** are big algae. They have different colours — green, greenish-blue, red, brown or yellow. Algae grow best on sunlit shores.

Algae have been considered to be the most important of all plants because they provide food for millions of sea animals. They can also be eaten by Man.

海 滨 植 物

海滨植物主要是各种类型的藻类。藻类有两大类：漂流藻类和固着藻类。漂流藻类很小，它们中间很多都是单细胞。然而，漂流藻类仍然能够象一般植物那样，依靠吸收水、矿物质和二氧化碳而生长。固着藻类，又叫海藻，是大型藻类，有各种不同的颜色：绿色、蓝绿色、红色、褐色或黄色。海藻在有阳光照耀的海滨生长得最茁壮。

藻类被认为是所有海洋植物中最重要的，因为它们为数百万种海洋动物提供食物。它们也可以为人们所食用。

ANIMALS OF THE SEASHORE

If you walk along a rocky seashore at low tide, you will find tiny crabs scuttling away to hide under stones, rocks or seaweeds. Look carefully at the rocks and you will find many tiny animals firmly attached to them. These little animals are called **barnacles**. They have white-coloured shells that are shaped like tiny tents with openings at the top. Barnacles spend their adult lives fastened to one spot. Not all barnacles are attached to rocks. **Gooseneck barnacles** fasten themselves onto driftwood or the bottom of ships.

海 滨 动 物

退潮时分，如果你漫步在岩礁重叠的海滨，你会看到许多小蟹急促地爬走，躲到石块、岩礁或海藻下的隐蔽处。如果你仔细地观察一下岩石，你会看到许多小动物牢牢地附着在岩石上。这些小动物叫藤壶。藤壶具有白色的外壳，形状如同顶端开口的小帐篷。藤壶固着在同一个地点，度过它们一生中的成年时期。并不是所有的藤壶都附着在岩石上，**鹅颈藤壶**固着在漂浮的木头上或船底。



Each barnacle has several short feathery arms which jerk in and out, swirling the water and bringing food into its mouth.

Mussels are another kind of sea animal which attach themselves to rocks. They have two, dark-coloured shells that fit together. They are known as bivalves. Mussels get their food from sea water which they filter by means of special tubes. Crawling about among the mussels are many **dog whelks** and **limpets**. They look like snails and feed mainly on barnacles. The dog whelks have spiral shells. In the larval stage the limpets have spiral shells but these soon become flattened into conical-shaped shells when the limpets grow into adults. Most of them have a hole at the top of their shells.

Another type of sea snail which you can often see on rocky seashores are the **periwinkles**. They normally grow to about 2.5 cm in length but their tongue has almost 4,000 teeth on it. Although the periwinkle has so many teeth, it eats only plants, especially seaweeds.



每一个藤壶都有几个短短的羽毛状的手臂，这些手臂伸出缩进，造成漩涡、并把食物送进嘴里。

贻贝是另一种固着在岩石上的海洋动物。贻贝有两片深色的壳，彼此闭合。贻贝也叫做双壳贝。贻贝利用特殊的管子过滤海水而取得食物。在贻贝之间爬来爬去的是许多油螺和蛞蝓，它们看起来象蜗牛，以藤壶为主要食物。油螺有螺旋形的壳，蛞蝓在幼虫阶段也有螺旋形的壳。但是长大后，壳很快就扁平下去，变成圆锥形。大多数蛞蝓在壳顶有一个孔。

你经常能在岩礁重叠的海滨看到的另一种类型的海螺是滨螺。滨螺通常长到2.5厘米左右长，但是它们的舌头上差不多有四千颗牙齿。虽然滨螺有这么多牙齿，但它们只吃植物，特别是吃海藻。



periwinkles 滨螺



dog whelks 油螺



mussels 贻贝




limpets 蛞蝓

These shellfishes are found on rocky shores.

在岩礁重叠的海滨可以见到这些贝壳类动物

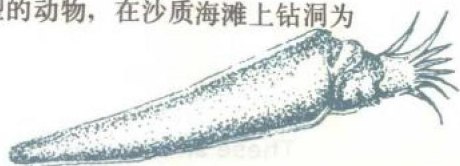
The animals of the sandy and muddy shores are slightly different from those found on rocky shores. On many sandy shores we can find various types of **worm-like animals**. Some of them, for example the **parchment worms**, live in U-shaped burrows. Others, such as the **trumpet worms**, build a complete tube around their bodies from grains of sand and broken shells. Crabs also live on sandy shores. They hide themselves by burrowing into the sand.

Cockles are found in large numbers on sandy shores. The places where they live together are called cockle beds. Like the mussels, cockles are also bivalves and feed by filtering sea water by means of special tubes. **Clams** are another type of bivalve. They make their homes by burrowing into the sandy shore.



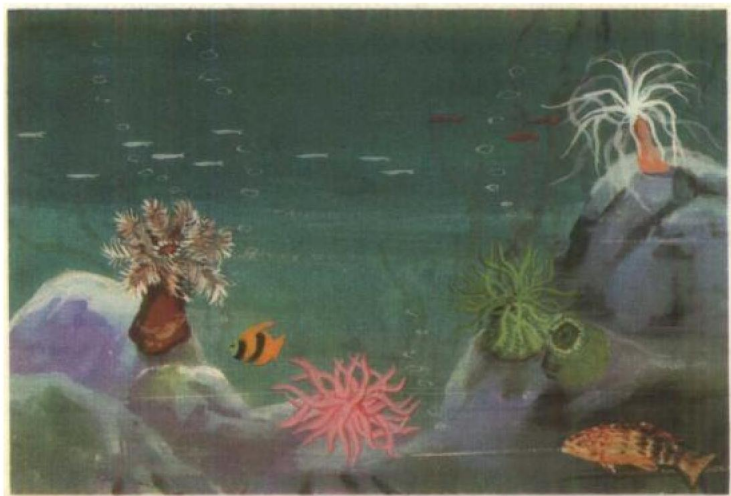
生长在沙质和泥质海滨的动物与生长在岩石重叠的海滨的动物稍有不同。在很多沙质海滨上，我们能够找到各种蠕虫形动物。它们当中有一些生活在U形的洞穴里，如柱头虫。另一些能够用沙粒和碎贝壳围绕自身建造完整的管子，如喇叭虫。蛞蝓也生活在沙质海滨，在沙里钻洞藏身。

在海边泥沙里能够找到大量蚶子。蚶子聚居的地方叫蚶窝。象贻贝那样，蚶也是双壳贝，它们用特殊的管子过滤海水，摄取食物。蛤蜊是另一种双壳类型的动物，在沙质海滩上钻洞为家。



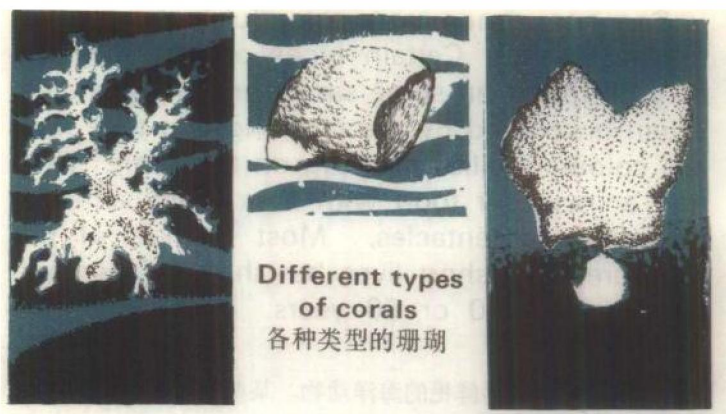
Sea anemones are a colourful-looking group of sea animals. Certain types of sea anemone may be found on some sandy or muddy shores. When uncovered by the receding tide they look like coloured jellies growing on the shore. They trap animals for food with their many arm-like structures or tentacles. Most animals of the seashore have short lives but the sea anemone may live for 50 or 60 years.

海葵是一类色彩鲜艳的海洋动物。某些类型的海葵可以在一些沙质或泥质海滨找到。落潮时海葵露了出来，看起来就象长在海滩上的彩色果子冻。它们用许多手臂状结构或触手来捕捉动物为食。大多数海滨动物寿命很短，但是海葵却能活到五、六十年。



Sea anemones are a colourful group of sea animals.

海葵是一类五颜六色的海洋动物



Different types
of corals
各种类型的珊瑚

Corals are related to sea anemones. The corals we know are actually the skeletons of very tiny animals which live together. These animals are called **polyps**. Each polyp has a stem-like body and a number of tentacles at the top. The polyps live inside the skeleton. Each polyp often puts out its tentacles to catch its food. All corals are fixed to the sea-bed or rocks. They may be white, red, purple, yellow or green in colour. Some corals are soft and rubbery while others are hard and stony.

珊瑚和海葵有亲戚关系。我们所知道的珊瑚实际上是许多生长在一起的细小动物的骨骼。这些小动物叫水螅。水螅有一个茎状的躯干，顶部有许多触手。水螅生活在骨骼里面。水螅经常伸出触手来捕捉食物。所有的珊瑚都固着在海底或岩石上。它们有白的、红的、紫的、黄的或绿的颜色。有的珊瑚象橡皮那样柔软，而另一些却象石块一样坚硬。

Things to Do

Make a trip to the beach at low tide. Collect as many different kinds of sea animals and plants as you can find.

Write down where you found each animal and plant. Take one of your sea plants and describe its colour, size and shape. Then draw a picture of the sea plant which you have described. Do the same for the other different types of plants in your collection.

Sort the animals into three groups:

- (a) animals without shells,
- (b) animals with one shell and
- (c) animals with two shells.

Talk about the animals in each group.

动 手 做

退潮时到海滨走一走，采集你能找到的各类海洋动物和海洋植物。

记录下你采集到的每一种动物和植物的地点。从采集到的海洋植物中，任取一种，描述它的颜色、大小和形状。然后把你所描述的这种植物绘成图。对采集到的其它类型的植物，也一一作同样处理。

把所采集的动物分成三类：

- 一、无壳动物；
- 二、单壳动物；
- 三、双壳动物。

谈谈每类动物的情况。

LIFE ON THE SURFACE OF THE SEA — THE PLANKTON

Many tiny animals and plants float about on or near the surface of the water. These are the **plankton** and they represent the largest and the most varied group of life present in the sea. Most of them can only be seen with the help of a microscope.

海洋表层的生命——浮游生物

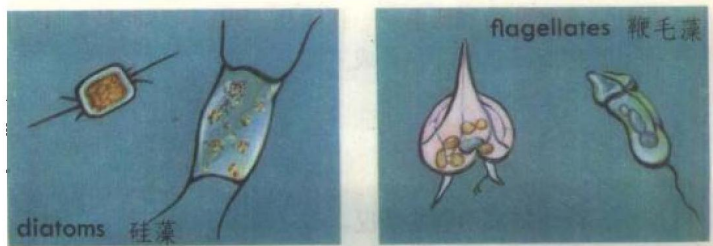
许多细小的动物和植物在海洋表层或靠近表层的地方浮游。这些是浮游生物，它们是数量最大、种类最多的海洋生物，大多数只能借助显微镜才能看到。

PLANT PLANKTON

These are sometimes referred to as the “grass of the sea”. They form the starting point for the life in the sea. It is these plants, that the very tiny animals in the sea feed on.

浮游植物

浮游植物有时被称为“海洋牧草”。它们构成了海洋中的生命的起点。海洋里的微小动物就吃这些植物。

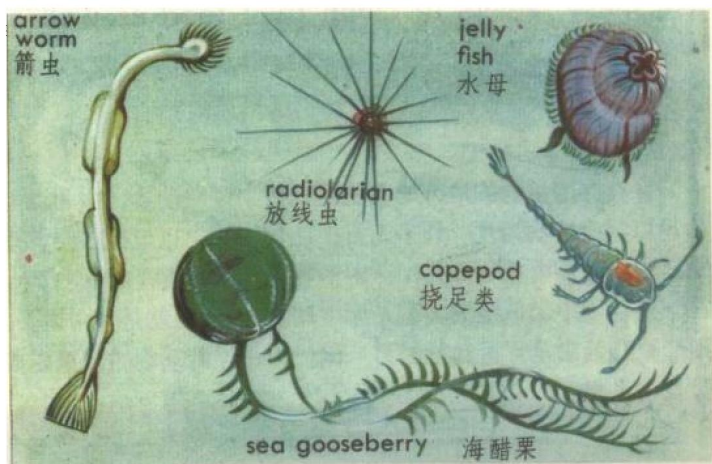


Many groups of plants make up the plant plankton. The **diatoms** form the biggest group. They are single-celled plants, enclosed in external skeletons which look like glass boxes. Diatoms have many types of shapes and colours. They all reproduce by simply dividing into two cells.

The **flagellates** are another large group which make up the plant plankton. They all have whip-like structures or flagellae which help them to swim.

浮游植物由许多种类的植物组成。硅藻是最大的一类。它们是单细胞植物，外面有骨架包裹着，看起来像个玻璃匣子。硅藻有许多种形状和颜色。它们全靠细胞分裂来繁殖。

鞭毛藻是组成浮游植物的另一个大类群。它们都有鞭状结构，即鞭毛，并靠它来游泳。



ANIMAL PLANKTON

The animal plankton are usually found in the same regions as the plant plankton because they feed on the plant plankton. The larvae of many invertebrates are included among the animal plankton. Like the plant plankton, they also exist in a great variety of forms and colours. The lowest forms of animal life in the plankton are the protozoa, an example of which is the **radiolarian**. The **Sea Gooseberry** and the **Arrow Worm** are other examples of planktonic animals. However the most important members of the animal plankton are the **copepods**.

Jellyfish in general may also be considered as a type of animal plankton. They look like little umbrellas. There are many short feelers around the edge of the umbrellas. These feelers have poisonous darts on them. The jellyfish use these feelers to catch their food as well as to protect themselves.

浮 游 动 物

在有浮游植物的地方通常就可以找到浮游动物，因为浮游动物以浮游植物为食。许多无脊椎动物的幼虫也包括在浮游动物之中。象浮游植物那样，浮游动物也是千奇百怪、五颜六色。在浮游动物中最低级的类型是原生动物，**放线虫**就是其中之一。**海醋栗**和**箭虫**是浮游动物的另一例。但是浮游动物的最重要成员是**挠足类**。