

BASIC SCIENCE SERIES

自然科学初级读物



LIVING THINGS -ANIMALS

生物——动物

叶念伦 译



科学出版社

自然科学初级读物

LIVING THINGS
— ANIMALS

生物 — 动物

发 行：新华书店北京发行所

经 售：各地新华书店

开 本：787×1092 1/32

印 数：1—100,000册 印 张：5/4

1979年10月第一版

1979年10月第一次印刷

统一书号：13051·1038 本社书号：0042

每册定价：0.30元

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。

科学普及出版社 一九七九年三月

BASIC SCIENCE SERIES — BOOK 7

自然科学初级读物 — 第 7 册

LIVING THINGS — ANIMALS

生物 — 动物

叶念伦 译

吴延迪 校

赵野木 插图

王珍莹



科学普及出版社

INTRODUCTION

In our world of living things we have plants, animals and people. Plants belong to a group called the **Plant Kingdom** while animals and people belong to the **Animal Kingdom**.

Look around you and you will see many different types of animals. Some animals are tiny while others are very large. Some animals are soft and long, while others are hard and rounded. Different types of animals which are alike in certain ways are put into groups. Let us find out how animals are put into groups.



引言

我们的生物世界中有植物、动物和人。植物属于一类，总称为植物界，而动物和人则属于动物界。

看看你的周围，你会见到很多不同种类的动物。有些动物很微小，有些则很巨大。有些动物又软又长，有些则又硬又圆。人们把某些方面相似的不同类型的动物加以分门别类。让我们弄清楚动物是怎样分类的吧。

Some members of the Animal Kingdom

动物界的一些成员



HOW ANIMALS ARE PUT INTO GROUPS

We can put animals into groups by studying their behaviour. We want to know how their bodies work, how they live, how they produce their young, how they find their food, what they eat, how long they live, and so on. We also have to examine the different parts of their bodies. When we examine them, here are a few questions we must ask ourselves: Do they have scales, feathers or fur on their bodies? How many parts are their bodies divided into? How many legs do they have? How many wings are there? Are there fins?

But the first and most important question is: Do the animals have backbones or not? All animals with backbones are put into one big group called **vertebrates**. All animals without backbones go into another group called **invertebrates**.

Sponges are invertebrates.

海绵是无脊椎动物

A bird is a vertebrate.

鸟是脊椎动物





These tiny, delicate creatures are protozoans.

这些微小纤细的动物是原生动

INVERTEBRATES



Paramecium

草履虫



amoeba

变形虫

Invertebrates are animals which do not have backbones or other bones inside their bodies. Some have soft bodies and some have hard coverings which protect their bodies. There are many kinds of invertebrates.

动物是怎样分类的

我们可以通过研究动物的习性把它们分类。我们需要知道它们的身体怎样活动，它们怎样生活，怎样繁殖后代，怎样寻找食物，吃什么，活多久，等等。我们还必须研究它们身体的各个部分。在研究这些部分时，这里有几个问题我们必须问问自己：它们的身上有鳞片、羽毛或毛皮吗？它们的身体分成几个部分？它们有几条腿？有几只翅膀？有没有鳍？

但是首要的问题，是这种动物有没有脊椎骨？凡有脊椎骨的动物都归为一大类，叫做脊椎动物。凡没有脊椎骨的动物则归入另一类，叫做无脊椎动物。

无脊椎动物

体内没有脊椎骨或其他骨骼的动物是无脊椎动物。有的身体柔软，有的有硬壳用来保护它们的身体。无脊椎动物有很多种。

PROTOZOANS

Protozoans are one kind of invertebrate. They are tiny and can only be seen through a microscope. Each protozoan consists of one cell only.

COELENTERATES

Coelenterates are soft, jelly-like invertebrates with long finger-like **tentacles** which can sting you. They have hollow bodies. Most of them live in the sea. Jelly fishes, sea anemones and corals are coelenterates.

PLATYHELMINTHES OR FLATWORMS

Platyhelminthes are animals with thin, flat bodies. Free-living flatworms are found in fresh or salt water or in moist places on land e.g. under stones on the seashore. The **flukes** and **tape-worms** are parasitic flatworms. They are parasites of Man, livestock and wild animals, causing illness and even death to these hosts.

NEMATODES OR ROUNDWORMS

Nematodes are shiny S-shaped worms with slender cylindrical bodies. Some are free-living and are found in soil and water. Others like the hookworm and threadworm are parasites of Man and other animals.

A coelenterate

腔肠动物





原生动物

原生动物是无脊椎动物中的一种。它们很小，只有用显微镜才能看到。每个原生动物只包含一个细胞。

腔肠动物

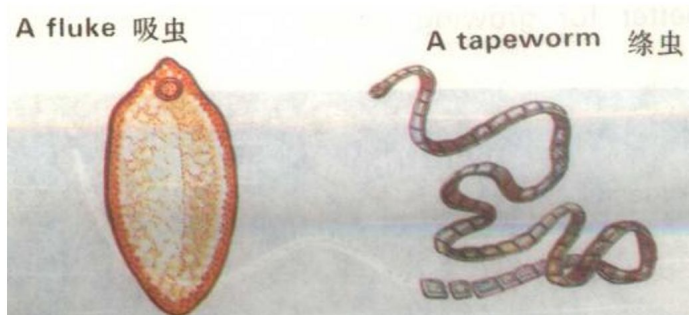
腔肠动物是柔软并呈凝胶状的无脊椎动物，有手指状的长触手，能刺着你。它们有中空的身躯，大多数生活在海里。海蜇、海葵和珊瑚就是腔肠动物。

扁形动物或扁虫

扁形动物是身体扁平的动物。自由生活的扁虫可以在淡水或咸水中，或陆上潮湿的地方，如海边的石头下找到。吸虫和绦虫是寄生的扁虫。它们是人、家畜和野生动物的寄生虫，使宿主生病，甚至死亡。

线形动物或线虫

线虫是有光泽的 S 形蠕虫，有细长的圆柱形身体。有些是自由生活的，可以在泥土或水中找到。另一些如钩虫和蛲虫，是人和其他动物的寄生虫。





A nematode worm
(hookworm)

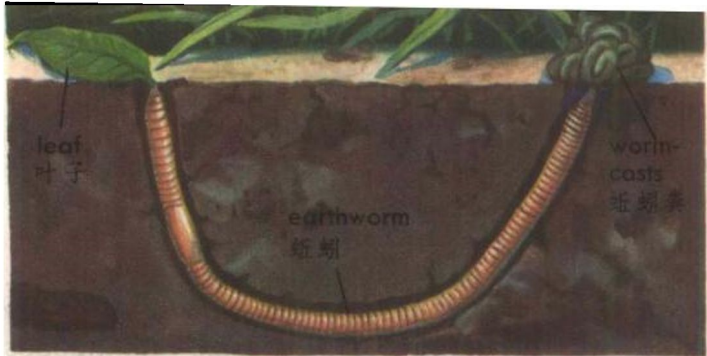
线虫 (钩虫)

ANNELIDS OR RINGED WORMS

Annelids are soft, moist worms which have rings around their bodies. They breathe through their skins. Earthworms, leeches and sandworms are annelids. Sandworms live in the sea and sometimes burrow in the beach. Leeches live on the blood of other animals such as pigs, horses and even human beings. Earthworms burrow in the soil while a few live in fresh water.

As earthworms burrow, they swallow the soil together with the food in the soil. The food is made use of by the body but the soil is passed out in little heaps called **worm-casts**. Earthworms are very useful to farmers because they bore holes in the soil. This allows air and water to enter the soil, and helps plant roots to grow more easily. They drag leaves into the soil. These rot and make the soil better for growing plants.





ARTHROPODS

Arthropods make up a very large group of invertebrates. They are found almost everywhere. All of them have jointed legs and hard outer coverings. They can be divided into four smaller groups. These are the **myriapods**, the **arachnids**, the **crustaceans** and the **insects**.

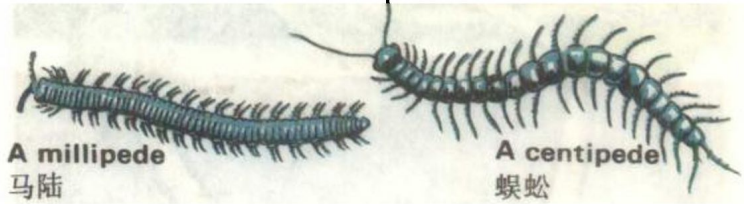
环节动物或环节虫

环节动物是柔软、粘湿的蠕虫，身体周围有环节。它们通过皮肤呼吸。蚯蚓、水蛭和沙蚕都是环节动物。沙蚕在海中生活，有时在海滩中挖洞。水蛭靠猪、马等其他动物，甚至人的血液生活。蚯蚓在泥土中挖洞，少数在淡水中生活。

蚯蚓挖洞时，把泥土和泥土中的食物一起吞下。食物被身体吸收，而泥土则被排出，形成一个个小土堆，叫做蚯蚓粪。蚯蚓在泥土中挖洞，因而对农民很有用，可以使空气和水进入泥土，使植物的根更易于生长。它们还把树叶拖进泥土。叶子腐烂，使泥土更适于栽种植物。

节肢动物

节肢动物组成无脊椎动物中很大的一类，几乎到处都可以找到。它们全都有分节的附肢和坚硬的外壳。节肢动物可分成四小类，即：**多足动物**、**蛛形动物**、**甲壳动物**和**昆虫**。



Myriapods

Centipedes and millipedes are myriapods. Both have long bodies divided into many segments and many pairs of legs. Centipedes have poisonous stings but millipedes are harmless.

Arachnids

Spiders, scorpions, king crabs, ticks and mites are arachnids. An arachnid has eight legs and a body made up of two parts. Spiders spin webs which they use to trap their food. Scorpions have poisonous stings. Ticks and mites live on the skins of human beings and other animals. Mites cause scabies.

Crustaceans

Crayfish, crabs, lobsters, prawns, shrimps and barnacles are crustaceans. Most crustaceans live in the sea but some crabs and prawns live in fresh water as well. Crustaceans are very important to human beings because they can be eaten as food.



多 足 动 物

蜈蚣和马陆是多足动物。两者都有长长的身体，分成很多环节，也都有许多对足。蜈蚣有毒刺，而马陆是无害的。

蛛 形 动 物

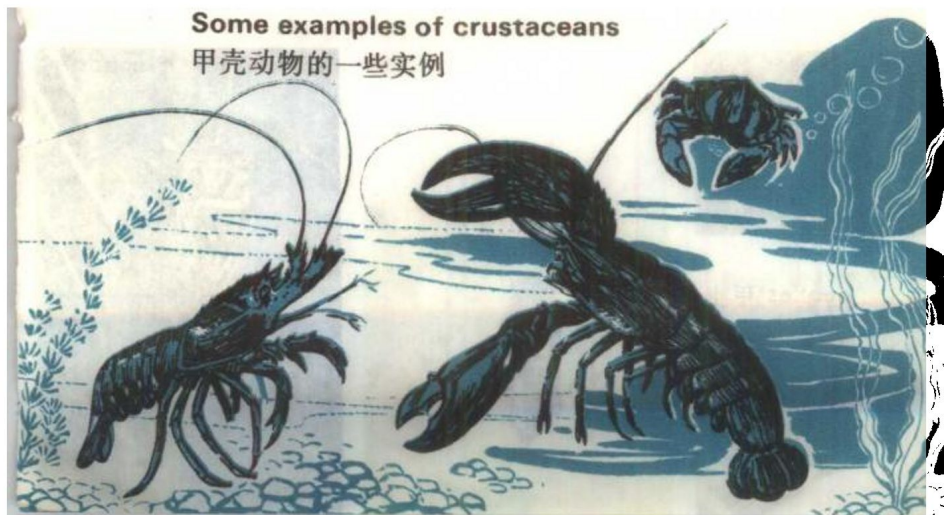
蜘蛛、蝎、蜚、蟬和螨是蛛形动物。蛛形动物有八条腿和由两部分组成的身体。蜘蛛编织蛛网，用以捕捉食物。蝎有毒刺。蟬和螨以人和其他动物的皮肤为生。螨引起疥疮。

甲 壳 动 物

蜊蛄、蟹、龙虾、对虾、虾和藤壶是甲壳动物。大多数甲壳动物在海中生活，但有些蟹和对虾也在淡水中生活。甲壳动物对人类很重要，因为它们可以当做食物吃。

Some examples of crustaceans

甲壳动物的一些实例



Insects

All insects have six legs each and a body made up of three parts — **head**, **thorax**, and the **abdomen**.

Our world has large numbers of insects and there are many types of insects too. Grasshoppers, butterflies, moths, flies, mosquitoes, bees and ants are some very common types of insects. Some insects such as mosquitoes are very harmful because they can spread diseases. Other insects such as cockroaches destroy things like clothing, wood and books. Grasshoppers are a nuisance because they feed on plants which Man grows for his own food.

But many insects are useful to us. We get honey from bees. The silkworm gives us silk. Bees, butterflies and moths pollinate flowers. As a result, these flowers develop into fruits and seeds. Some insects help us by killing other harmful insects which damage plants.

a grasshopper 蚱蜢



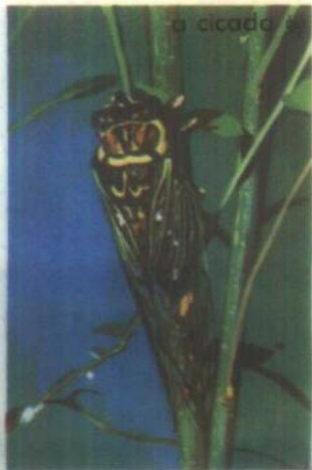
beetles 甲虫



a bee 蜜蜂



a cicada 蝉





昆 虫

昆虫全都有六条腿，身体由三部分组成——头、胸和腹部。

我们的世界有大量昆虫，昆虫的种类也很多。蚱蜢、蝴蝶、蛾、苍蝇、蚊虫、蜜蜂和蚂蚁是一些很普通的昆虫。有些象蚊虫那样的昆虫很有害，因为它们会传布疾病。其他昆虫，如蟑螂，毁坏东西，如衣服、木料和书籍等。蚱蜢是一种讨厌的东西，因为蚱蜢以庄稼为食，而庄稼是人类作为自己的食物而种植的。

但是，许多昆虫对我们是有益的。蜜蜂为我们采蜜。蚕为我们吐丝。蜜蜂、蝴蝶和蛾为花朵授粉，使这些花朵结出果实和种子。有些昆虫帮助人们杀除毁坏植物的其他害虫。

Things to Do

- (i) Let us find out about the parts of different insects. Go out to the garden or field and collect as many insects as you can find. Can you name your insects?

Put three different kinds of insects on a piece of paper. Now look at your insects closely with a hand lens. Answer these questions: How many legs, wings, feelers and eyes does each insect have? Do all your insects have the same number of body parts? Which parts are these? How many stomach parts are there in each insect? What is the colour of each insect? Which is the biggest insect? Which is the most beautiful?

Now look at the wings of your insects. What do you see? Rub the wings. Do little scales come off?

- (ii) Let's study a live grasshopper. You can find a grasshopper among grass or the leaves of certain plants. Now answer these questions: What does the grasshopper feed on? What is the colour of its body? How many body parts are there? Has it wings? How many? How many legs has it? From which part of the body do they grow? Are the eyes large or small? What is the shape of each eye? Where are the eyes placed? Are there eyelids? What else can you