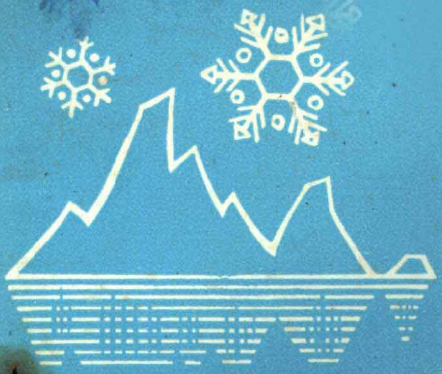
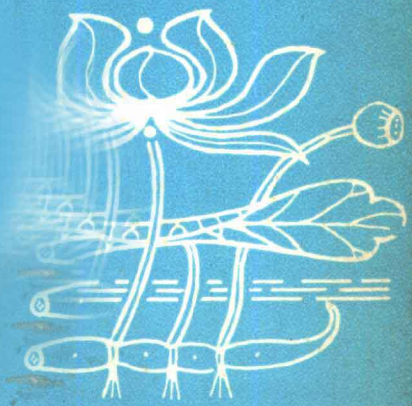


科普英语注释读物

WATER
水

〔美〕B.M.Parker 著



科普英语注释读物

WATER

水

〔美〕B. M. Parker 著

尹家瑞
查剑英 译注

商务印书馆
1982年·北京

科普英语注释读物

水

〔美〕B. M. Parker 著

尹家瑞　查剑英 译注

商 务 印 书 馆 出 版
（北京王府井大街36号）
新华书店北京发行所发行
外文印刷厂印刷
统一书号：9017·1239

1982年10月第1版　开本 787×1092 1/32
1982年10月北京第1次印刷　字数 55千
印数 13,700 册　印张 2 1/4
定价：0.28 元

说　明

为了适应大中学生和具有初步英语基础的其他读者提高英语阅读能力的需要，我们译注了美国出版的基础科教丛书之一——《水》。

本书介绍了水在工业和日常生活中的重要性。该书文笔流畅，内容浅显，叙述生动。为了便于读者自学，每篇短文后面都附有一定量的词汇和注释。参考译文供读者在学完每篇短文之后进行对照，以检查自己的理解程度。书末还附有总词汇表，以供查阅。

由于我们水平和经验的限制，书中一定有不少缺点和错误，热忱地欢迎读者批评指正。

译注者

1981 年

Contents

1. Water (水) 1
2. Water to Drink (饮用水) 6
3. Water for Keeping Clean (清洁用水) 13
4. A Billion Gallons a Day (一天用十亿加仑的水) 16
5. Keeping Us Warm or Cool (使我们暖和或凉爽的水) ...20
6. A Place to Play (游玩的地方) 23
7. Water for Crops (庄稼用水) 25
8. Homes for Living Things (生物之家) 28
9. Water Walls and Highway (水障和水路) 32
10. Water to Run Machines (开动机器的水) 35
11. Building Up and Tearing Down Land (形成和破坏陆地的水) 38
12. A Rock Book (岩石书) 42
13. Do You Know Now? (现在你知道了吗?) 44

参考译文.....45
总词汇表.....64

1. Water

It is above you and below you and all around you. It is in everything you eat and drink①. It is in you. It is almost everywhere.

Sometimes it is as hard as rock②. Sometimes you can pour it. Sometimes you cannot either see it or feel it.

It may be very wet. It may not be wet at all. Can you tell what it is?

The name of this book tells you the answer.

Water certainly is almost everywhere. Oceans and lakes and ponds and streams are made up of water. But there is water in many other places, too.

Even in the driest part of the world there is some water in the air. You cannot see it or feel it when it is a part of the air. The water in oceans and lakes and ponds and streams is a *liquid*. The water in the air is not a liquid. It is a *gas* instead. We call it *water vapor*.

Water vapor is not wet. It is dry. Only liquid water is wet.

Clouds are made of water. They may be made of tiny drops of water. They may be made of snow crystals. Snow crystals are tiny crystals of ice. Clouds made of snow crystals are really made of water, for ice is frozen water. It is water that has become a *solid*.③

There is always some water in the ground. There may be enough to make the ground muddy. But even when ground feels dry, it has water in it. It may feel dry because the water

in it is frozen. Or there may be only a little water in it, and this water may be sticking too tightly to the tiny bits of soil for you to feel it.

Every plant is part water. So is every animal.④ Your own body is more than half water.

Milk has a great deal of water in it. Tomatoes and apples and lettuce have, too. There is water almost everywhere.

Water, you have found out, may be a solid or a liquid or a gas.⑤ When it is a solid, it may be as hard as rock. When it is a liquid, you can pour it. When it is a gas, you cannot see it or feel it.

Ice can change to water or water vapor. Liquid water can change to ice or water vapor. Water vapor can change to either ice or water.

When ice or water changes to water vapor, we say that it *evaporates*. If you let a pan of water stand without a cover, the water will disappear. It will evaporate. If you heat water, you can make it evaporate faster. If you heat it enough, you can make it boil. When it boils, water changes into water vapor very fast. The bubbles you see in boiling water are water vapor. We usually call the water vapor that comes from boiling water by another name — *steam*.

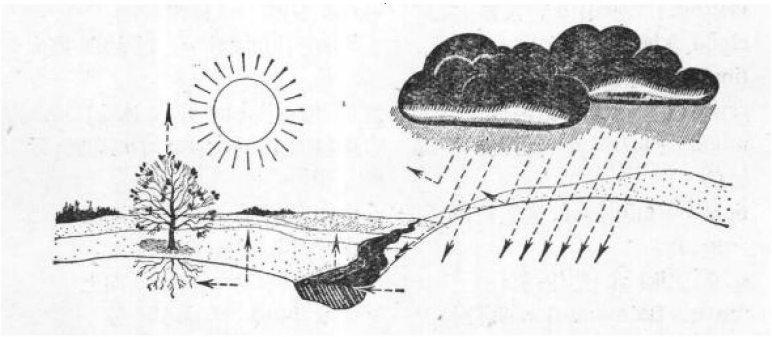
When water vapor changes to water or ice, we say that it *condenses*. We can make water vapor condense by cooling it.

When water turns to ice, we say that it *freezes*. When ice turns to water, we say that it *melts*.

Water goes on many journeys. The same water may form a drop of dew on a spider web at one time. At another time it may be part of an ocean wave. It may at some time be part of an oak tree, and at some other time part of a huge

iceberg. On its journeys it does a great deal of changing from a solid or a liquid to a gas and then back again.®

In all its journeys water travels around and around in a kind of circle. The picture will help you understand this circle.



To trace its travels let us start with a cloud. Drops of water fall from the cloud. The air is warm and dry. Some of the water changes to water vapor before it hits the ground. Air moving upward carries it to the cloud again. It is cooled and changed back to drops of water. It has made a fast round trip.

Most of the water from the cloud reaches the ground. Some of it soaks in. It may be taken in by the roots of thirsty plants. It may reach a well or a spring. Some of the water from the cloud runs off into streams that carry it to a lake or a sea.

No matter what journey it goes on, sometime it will be evaporated again. Water is evaporating all the time from oceans and ponds and lakes and streams. It is evaporating from the ground and from plants and animals. Even if it is frozen in a snow field for hundreds of years, it will evaporate at last. Sooner or later it is sure to get back to the clouds and start on another journey.

New Words

rock [rɔk] *n.* 岩石
pour [pɔ:] *vt.* 倒;灌;注
ocean ['əuʃən] *n.* 海洋
instead [in'sted] *ad.* 代替
cloud [klaud] *n.* 云
tiny ['taini] *a.* 极小的,微小的
crystal ['kristl] *n.* 结晶体
muddy ['mʌdi] *a.* 泥泞的,多泥的
tightly ['taitli] *ad.* 紧紧地,牢固地
stick [stik] *vi.* 粘住;钉住
tomato [tə'mɑ:təu] *n.* 西红柿
apple ['æpl] *n.* 苹果
lettuse ['letis] *n.* 莴苣
evaporate [i'væpəreit] *vi.* 蒸发,挥发
condense [kən'dens] *vt. vi.* (使)凝结
melt [melt] *vt. vi.* (使)融化
dew [dju:] *n.* 露水
spider ['spaidə] *n.* 蜘蛛
web [web] *n.* 网;网状物
oak [əuk] *n.* 橡树
huge [hju:dʒ] *a.* 巨大的,庞大的
iceberg ['aisbə:g] *n.* 冰山
diagram ['daiəgræm] *n.* 图解;示图
trace [treis] *vt.* 跟踪,追踪
drop [drɔp] *n.* 滴
upward ['ʌpwəd] *ad.* 向上
soak [səuk] *vi.* 渗透
root [ru:t] *n.* 根
thirsty ['θə:sti] *a.* 渴;干旱的
well [wel] *n.* 井
spring [spriŋ] *n.* 泉
sometime ['sʌmtaim] *ad.* 在某个时候

Phrases and Expressions

either ... or ... 或…或…,不是…就是…
too ... to ... 太…以致不能…
a great deal 很多,大量
all the time 一直,始终
at last 终于
sooner or later 迟早,早晚
be sure to 必定,一定

Notes

① It is in everything you eat and drink.

you eat and drink 此处为定语从句,省略了关系代词that.

关系代词 that (或 which) 在定语从句中作宾语时,往往可以

省略。

② Sometimes it is as hard as rock.

句中的 as ... as 是个固定的用法。前一个 as 是副词，后一个 as 是连词，其意义为"象…一样"，常用来表示同类事物的比较。

③ It is water that has become a solid.

此句是一个强调结构，句中 it 本身没有词意。强调结构的常用形式为：It is (was)＋被强调部分＋ that....

④ So is every animal.

句中 so 是个副词，常可用来代替上文中的形容词，名词或动词，意思是"同样"。这里的 so 就代替上句中的 part water. so 在这样使用时，句中主谓语一般倒装。

⑤ Water, you have found out, may be...:

该句中 you have found out 是一非限制性定语从句，所以前后要用逗号分开。该从句说明 water 一词。其前省略了作宾语用的关系代词 which 或 that.

⑥ ... and then back again.

该句中 and then 之后省掉了 changes 一词。

2. Water to Drink

How do you get a drink of water? If you live in a town or city, probably you just open a faucet. If you live in the country, you may get it from a pump.

Getting water from a faucet or a pump probably does not seem at all wonderful to you.① But it would have seemed wonderful to the people of long ago.

Some of the people of early times caught rain water in jars or bowls. Some dipped their water from lakes or rivers. Some got it from springs. To get it to their homes they had to carry it. They used jars or bags made of skin. In some parts of the world water still has to be carried in jars or skin bags.

But long ago people found that they could get water in some places by digging wells down into the ground. Many villages grew up around wells.

Sometimes, however, people wanted to live in places that were not near any water to drink. For example, the city of Tyre, which was an important city 3,000 years ago, was built on an island. It was not easy for the people of Tyre to get drinking water. There was a whole sea at their front door, but the sea water was too salty to drink. The water in the wells on the island was salty, too.

The people of Tyre got water from wells far back from the shore on the mainland.② The water had to be carried to the shore. Then it had to be brought to Tyre in boats.

At last some of the people of Tyre thought of a way of get-

ting water more easily. They dug a ditch from the wells to the seashore. They lined and covered the ditch with pieces of stone. Fresh water from the wells was poured into the ditch. It flowed down to the shore. There it was loaded on boats as before.

The ditch the people of Tyre built was an *aqueduct*. "Aqueduct" comes from two words meaning "water" and "lead."

Eighteen hundred years ago Rome was the world's leading city. It was the center of the great Roman Empire. In those days dozens of cities had aqueducts. Rome itself had several. Some of them brought water from springs fifty miles away.③ Many aqueducts had to cross valleys. They crossed the valleys on high stone bridges.

Rome not only had aqueducts to bring water to the city. It also had miles of pipes under its streets to carry water to different parts of the city. Some of the other cities had pipes under their streets, too.

Hundreds of years later the pump was invented. Pumps let people get water from wells easily. Before they had pumps, people had to lift water out of wells with pails.

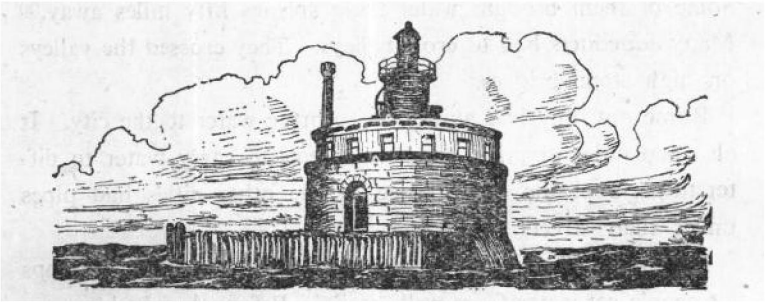
The first pumps were worked by hand. But before long windmills were used for working some of them.

Today aqueducts still help many people get the water they need. Water comes to Los Angeles, for instance, through two great aqueducts, both more than 200 miles long. Pumps are still very important, too.

Nowadays some cities get their water from springs or wells just as did some of those of long ago. They may get it from deep wells called *artesian wells*. Water flows from some artesian wells without having to be pumped.

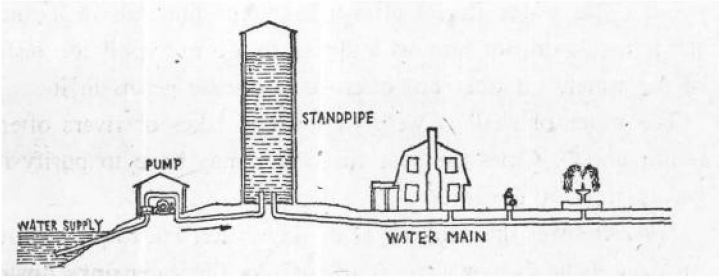
Some cities get their water from rivers. To be sure they would have plenty of water, some cities have built dams across rivers. These dams have turned the river valleys into big reservoirs. Water piles up behind the dams and fills the reservoirs. The reservoirs full of water are artificial lakes.

Some cities get their water from real lakes. Chicago takes its water from Lake Michigan. Pipes bring it to the city from several miles out in the lake. In the lake, buildings like the one in the picture cover the ends of the pipes. They are called *cribs*.



A city has to have a way of making water flow to all parts of it. A city also has to have a way of making water flow up into buildings. If the water comes from high above the city, there will be no trouble about making the water flow where it is wanted.④ Gravity will do the work. But if the water does not come from high above the city, pumps will have to help. Many cities use pumps run by steam engines or by electric motors.

In small cities *standpipes* are sometimes used. The upper picture on page 9 helps you see how a standpipe works. A pump forces water up into a standpipe. Then the weight of the water in

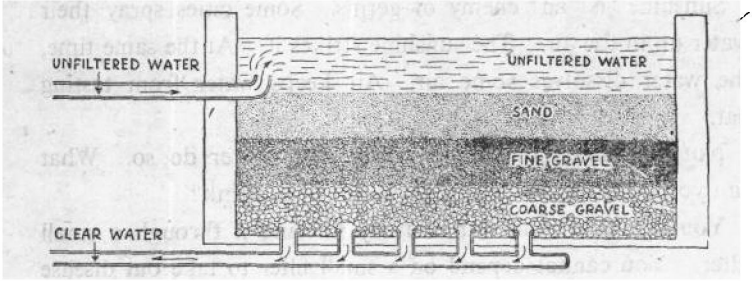


the standpipe makes water flow out whenever a faucet or fountain or hydrant is opened.

The people of Tyre, you remember, got water from far away because the water near by was too salty. Salt is not the only thing that may keep water from being fit to drink.⑤

The water in lakes and rivers is often muddy. No one likes the taste of muddy water.

But even clear water may not be fit to drink. You cannot see the salt in sea water. It is *dissolved* in the water. Water may have other minerals dissolved in it that give it a bad taste. Besides, clear water may have disease germs in it. Disease germs are too tiny to be seen without a microscope.



If they can, cities get water that is good to drink. Water from springs, mountain lakes, and deep wells is likely to be

good. This water almost always has some minerals in it, but the minerals do not hurt us and usually do not spoil the taste of the water. It does not often have disease germs in it.

The water of shallow wells or lowland lakes or rivers often is not good. Cities that use this water may have to purify it before it is fit to drink.

Filtering takes the mud out of muddy water. The lower picture on page 9 shows how water is filtered. As the water sinks down through the sand and gravel, the mud sticks to the bits of rock. Filtering water through a big filter bed like the one in the picture takes out many disease germs, too. It does not take out minerals.

There is another common way of taking out mud. The water is put into great tanks. It stands there until the mud settles. Sometimes a chemical is put into it to make the mud settle faster. Then the clear water at the top of the tank flows out.

To get rid of disease germs, cities sometimes put a chemical in the water. They often use *chlorine.* Chlorine is a poison. But not enough is put in to hurt people.® Only enough is used to kill germs.

Sunshine is an enemy of germs. Some cities spray their water up in the air. The sunshine strikes it. At the same time, the water dissolves some air. Air keeps water from tasting flat.

Not all cities that should purify their water do so. What can you do if the water you get is not fit to drink?

You can take mud out of it by filtering it through a small filter. You cannot depend on a small filter to take out disease germs.

You can kill germs in the water by boiling it. Many people

think that boiling makes water pure. Really it only kills germs. It does not take out mud. It does not take out minerals, either.

Boiling and filtering make a good combination. Even the two together do not take out the minerals, but usually we do not care.

There is a way of getting rid of germs and mud and minerals all at the same time. The water can be *distilled.* To distill water, you change it to steam by boiling it. Then you cool the steam and change it back to water again. The steam leaves all the germs and mud and minerals behind. The people of ancient Tyre might have used sea water to drink if they had known how to distill it.⑦

New Words

faucet ['fɔ:sit] *n.* 龙头
country ['kʌntri] *n.* 国家；乡下
pump [pʌmp] *n.* 泵，抽水机
jar [dʒɑ:] *n.* 罐子，坛子
bowl [bəul] *n.* 碗
dip [dip] *vt.* 汲出，舀取
skin [skin] *n.* 皮
aqueduct ['ækwidʌkt] *n.* 导水管
artesian [ɑ:'ti:zjən] *a.* 自动流出的
dam [dæm] *n.* 水坝
reservoir ['rezəvwɑ:] *n.* 水库
artificial [ɑ:ti'fiʃəl] *a.* 人工的，人造的
crib [krib] *n.* 蓄水库
standpipe ['stændpaip] *n.* 圆形水塔
fountain ['fauntin] *n.* 泉水，喷泉
hydrant ['haidrənt] *n.* 消防龙头，给水栓
taste [teist] *n.* 味道
dissolve [di'zɔlv] *vt.* 分解，使溶解
mineral ['minərəl] *n.* 矿物质
germ [dʒə:m] *n.* 细菌
microscope ['maikrəskəup] *n.* 显微镜
spoil [spɔil] *vt.* 损坏
shallow ['ʃæləu] *a.* 浅的
lowland ['ləuləndˌ] *n.* 低地
purify ['pjuərifai] *vt.* 使纯净，使洁净
filter ['filtə] *vt. n.* 过滤；过滤器
gravel ['grævəl] *n.* 砂砾
tank [tænk] *n.* 大容器，罐子

settle ['setl] *vt.* 沉淀
chlorine ['klɔ:ri:n] *n.* 氯气
poison ['pɔizn] *n.* 毒，毒物
spray [sprei] *vt.* 喷洒
flat [flæt] *a.* 平的；走了味的
distill [dis'til] *vt.* 蒸馏

Phrases and Expressions

fresh water 淡水
the great Roman Empire 古罗马帝国
to pile up 堆积
to get rid of 摆脱，除去
at the same time 同时

Notes

① Getting water from a faucet or a pump ...:

getting ... 是一个动名词短语。和名词一样，动名词可做各种句子成分，在本句中getting ...用作主语。

② ... far back from the shore on the mainland.

far back from... 是一后置定语，说明 wells. 形容词短语作定语时，往往要放在被说明的词的后面。

③ ... from springs fifty miles away.

fifty miles away 是一个后置定语，说明 springs. 其理由同上注。

④ ... about making the water flow where it is wanted.

making 是 make 的动名词，它和 make 一样可以要求不带to的动词原形作为其宾语的补足语。这里 flow 就是宾语 water 的补足语。

⑤ ... that may keep water from being fit to drink.

keep ... from 系一词组，作"使免于"解，在它的后面一般要跟动名词，所以在本句中使用了 being fit 这一形式。

⑥ But not enough is put in to hurt people.

enough 此处用作名词，等于 enough chlorine.

⑦ The people of ancient Tyre might have used sea water to drink if they had known how to distill it.

本句是一个表示与过去事实相反的虚拟语气句。意思是：如果古泰尔人知道使水蒸馏的话，他们本来是可以饮用海水的。