

方原版教材与经典读物·科学系列

SCIENCE READERS

科学读本

3

〔美〕文森特·默奇 (Vincent Murche) / 著

天津出版传媒集团

天津人民出版社

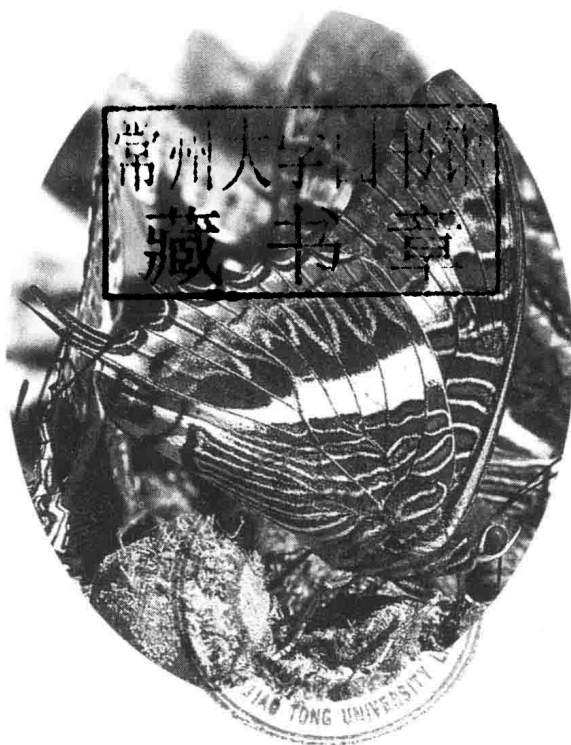
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图书在版编目 (CIP) 数据

科学读本：英文/(美)默奇著. —天津：天津人民出版社，
2013.5

ISBN 978-7-201-08100-7

I. ①科… II. ①默… III. ①自然科学—普及读物—英文
IV. ①N49

中国版本图书馆CIP数据核字 (2013) 第059454号

天津出版传媒集团

天津人民出版社出版、发行

出版人：黄沛

(天津市西康路35号 邮政编码：300051)

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电子邮箱：tjrmcbs@126.com

北京领先印刷有限公司

2013年5月第1版 2013年5月第1次印刷

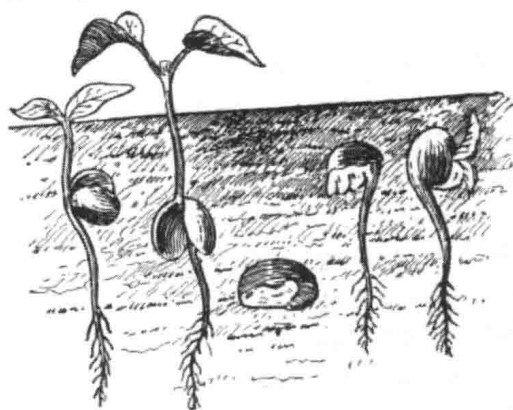
640 × 940毫米 16开本 76.5印张 字数：800千字 插图：550幅

定 价：118.00元 (全套6册)



Reading enables us to see with the keenest eyes, to hear with the finest ears, and listen to the sweetest voices of all time.

—James Russell Lowell





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Lesson 01

Water—Its Properties

“We have not learned all about water yet, it seems,” said Will, as the two boys trudged home from school.

“No,” said Fred, “I expect there is plenty more for us to learn, and yet it all seems so simple when teacher leads us to look at the things in the proper way.”

They had just been promoted again to a higher class, and that day the teacher had given the class the first object lesson of the new course. It was about the properties of water.

Our two boys seemed to have taken a new interest in life and in the things around them from the day they had their first object lesson. They had been through two courses of lessons, and were now about to commence the third.

“What are you so busy with, boys?” said Norah to them after tea.

“We are getting a few things ready for another chat about water,” said Fred, “if you would like to join us, Norah.”

“Oh yes,” said she, “I should. But I can’t think what else you can have to say about water. We know that it is a liquid, and that it dissolves things that are put into it, and that—”

“There, there, wait a minute, little girl,” said Will. “Suppose you tell us why you call water a liquid.”

“Oh, that’s easy,” said Norah. “First of all water has no shape of its own. It always takes the shape of the vessel which holds it. Then, too, it cannot stand in a heap, but always keeps a level surface.

“We cannot grasp water in our hands, to pick up a handful of it, as we could a handful of sugar or flour or raisins. The water would fall away in drops out of our hands and run along the floor, because water always flows down and tries to get lower. Everything that is like water in these respects is a liquid.”

“I think she knows why water is called a liquid, Fred, so we may as well talk now about the other properties of water.” said Will.

Fred had got several tumblers, just as he had seen his teacher do in class. He put clear water in one, and milk in another, and in the rest of them some water that he had colored with a few drops of red, black, and blue ink. He showed Norah these colored waters first, then the milk, and lastly the glass of clear water.

"Now, little girl," said he, "what color is water? You see it is not white; the milk is white. Neither is it black, or red, or blue."

"I don't think it has any color," said Norah.

"And you are quite right," said both the boys. "Water is a colorless liquid."

"Now," Fred continued, "look through the tumbler of water, and then through the milk. Can you see this ball through the milk?"

"No."

"Can you see it through the water?"

"Yes, I can see it through the water, but not through the milk."

"Remember, then, that water is transparent, milk is opaque. Water is a colorless transparent liquid. Milk is a white opaque liquid."

"And remember, Norah," said Will, "that we learn these properties of water through our eyes, by the sense of sight."

"Now, suppose we made you shut your eyes, and tell the names of various liquids, such as tea, vinegar, cocoa, coffee, brine, by smelling and tasting them, could you do it?"

"Oh yes, I am sure I could," said Norah.

"Then shut your eyes, and tell us the name of this one by first smelling it and then tasting it," said Fred.

“I can neither smell nor taste anything.” said Norah.

“Now open your eyes and see what the liquid is,” said her brother. “You see it is water. Water has neither odor nor taste. We say it is an inodorous and tasteless liquid, but we learn this through two other senses—the sense of smell and the sense of taste.”

SUMMARY

Water is a liquid. Liquids have no shape of their own; they take the shape of the vessel which holds them; they flow about; they break up into drops; they will not stand in a heap, but always keep a level surface. Water is a transparent, colorless, tasteless, inodorous liquid.

Lesson 02

Some of the Uses of Water

“Now that we know something of the properties of water,” said Fred, “we can talk about a few of the uses to which it is put. What do you think is the most important use which we make of water, Norah?”

“I should say,” replied Norah, “that its chief use is for drinking purposes.”

“Quite right,” said Fred. “We could not live long without drink of some sort, and although we do not always drink water, yet all drinks are made of water.”

“Yes,” added Willie, “and animals and plants, as well as ourselves, require water or they would die.

“We must not forget, too, that our food has to be cooked and prepared with water.

“Then think of the great use we make of water in washing ourselves and our dirty clothes, and in cleaning our houses. Teacher says it is the natural cleanser. We cannot be healthy and happy unless we are clean. Dirt brings disease, and the worst enemy of dirt is water.”

“Now, I want you,” said Fred, “to imagine what would happen if the water, instead of being colorless, tasteless, and odorless, had a taste, smell, and color of its own.

“Picture to yourself our shirts and collars, everything we wear, as well as our floors and tables, and every article of our food, colored red or blue, through being washed or prepared in red or blue water.

“Think of the taste of our food too. It would take the same flavor and the same smell as the water in which it was cooked.

“Water is useful for all these purposes simply because it is colorless, tasteless, and odorless.”

“I have just been thinking,” said Willie, “of what teacher told us about the water cisterns. You know water is very absorbent, and will suck up and hold gases.

“Teacher told us that all rotting or decaying matter in dustheaps and manure heaps gives off bad gases. These bad gases would be sure to find their way into any water that was near, and we could not drink such water without being made very ill.

“The cistern which holds the water for drinking and cooking our food should be kept as far as possible from rubbish and manure heaps, and bad smells of all kinds.”

“There is one great use of water,” said Fred, “that depends upon its being absorbent. Just think of the fishes and other animals that live entirely in the water. These animals all require air. Without air they would die.”

“But how can they get air in the water, Fred?” said Norah. “Do they come up to the top every time they want to breathe?”

“No,” said Fred, “they do not. Many of these creatures never come to the surface of the water at all. Yet they breathe freely, because there is plenty of air in the water.

“The water is absorbent. It is constantly sucking in air all over its surface. It is this air which the fishes and other creatures breathe.”

SUMMARY

Water is the natural drink of man and all animals. It is the natural cleanser. We cook and prepare our food with water. Water absorbs gases. Fishes can breathe in water, because it contains air. Drinking water should be kept from bad smells of all kinds.

Lesson 03

Birds and their Covering

“We have not had a chat about animals for a long time,” said Fred. “Would you like us to start one this evening, Norah? We had a good lesson on birds today, and I think Will and I can tell you something about it.”

“Oh,” said Norah, “I should like it very much.”

“Well then, you remember we talked about several animals last year,” Fred began. “We had amongst others the cat, dog, sheep, pig, horse, cow, and rabbit. Now think of them, one by one. What sort of clothing have they?”

“They all have different sorts of coverings,” said Norah.

“Quite true,” said Fred. “But all birds are clothed with feathers.”

“Now I want you to think of something else. How do all those animals feed their young ones?”

“They nurse them,” said Norah. “I have seen our Tabby nurse her kittens.”

“Did you ever see a bird nurse its young?”