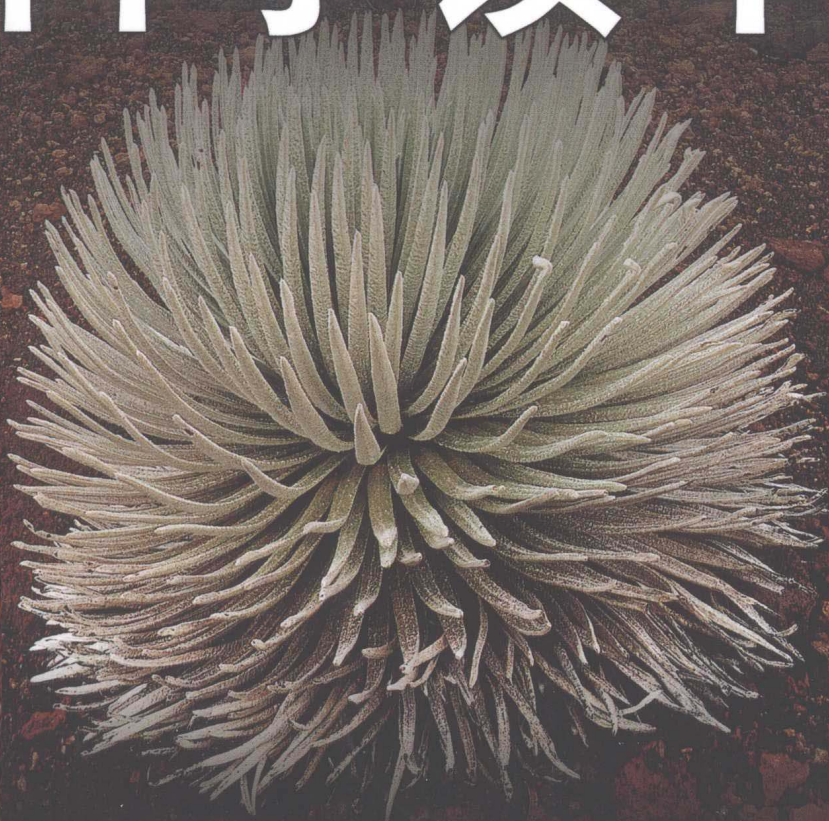


西方原版教材与经典读物·科学系列

# SCIENCE READERS

# 科学读本

2



〔美〕文森特·默奇 (Vincent Murche) / 著

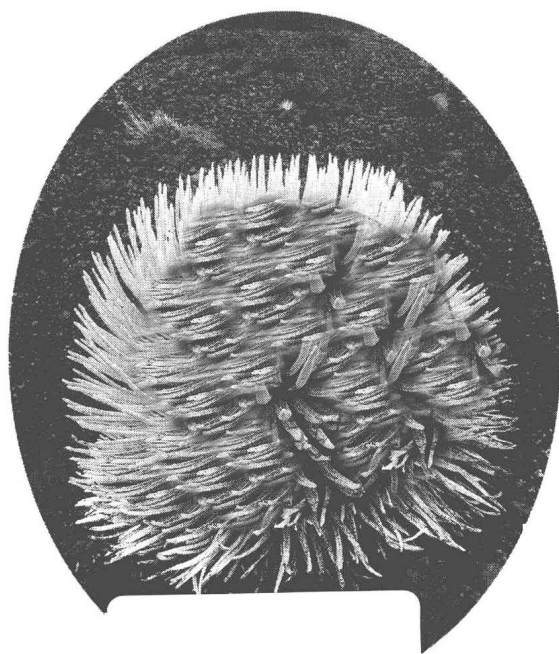
天津出版传媒集团  
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西方原版教材与经典读物·科

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## 科学读本<sup>②</sup>

〔美〕文森特·默奇 (Vincent Murche) / 著



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## *Lesson 01*

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### Porous Bodies

Fred and Willie came home very proud from school one afternoon. "What do you think, Norah?" said Fred. "We have both been put up into the next class. Teacher picked out a few of the best boys to go up. I am so glad Will was put up with me."

"And only think, Norah," said Willie. "We shall still have our jolly object lessons. We had a lesson this afternoon about porous bodies. Shall we tell you all about it, Norah?"

"Oh, do, please." said Norah.

"Well then," said Fred, "you must first tell us all the porous bodies you can remember."

"Oh yes," said Norah. "Sponge, bread, sugar, chalk, dry clay, charcoal, and coke are all porous. They all suck up liquids into their pores."

"Quite right," said Fred. "Now watch me. This is a tumbler about half-full of turpentine. This piece of cane has been standing in the



tumbler a few minutes. See what happens when I put a match to the top of the cane.”

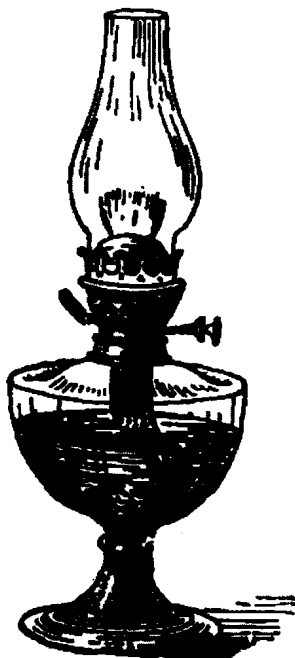
“Why, it bursts into a flame at once,” said his sister. “How is that?”

“I’ll show you,” said Fred, “just as teacher showed us. Look at the holes in the bottom of the cane.”

“Then I suppose,” said Norah, “the pores of the cane absorb the turpentine, and take it up to the top.”

“That’s just it,” said both the boys. “The cane is porous.”

“Now look here. Do you know what this is?” said Fred.



“It is a piece of the wick of the lamp,” said Norah.

“See,” said Fred, “I will dip it into this water. Now when I take it out and squeeze it, some water runs out of it. What does that prove, Norah?”

“It proves,” said she, “that the wick is porous, and that it absorbs liquids.”

“Quite right,” said Fred.

“Now think of the wick in the lamp itself. The lower part

of the wick is in the oil, but it is the upper part that gives the light.”

“Oh, I think I see,” said Norah, “The wick must be something like the cane. I suppose it absorbs the oil, and carries it up to the top, where it burns.”

“That is right, Norah,” said Willie, “And a candle burns in the same way. The heat melts the tallow into a liquid. The wick absorbs the liquid tallow, and carries it up to the top, where it burns.”

#### SUMMARY

Porous bodies absorb liquids. Turpentine rises through the pores of the cane and burns at the top. The wicks of the candle and the lamp are porous. The tallow and the oil rise through the pores of the wick and burn at the top.

## *Lesson 02*

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### Sponge—and its Uses

“Oh, boys,” cried Norah, as she rushed into the room, “do come with me at once. Our dear old Ponto has cut his foot in the garden. The poor old fellow is in such pain, and it is bleeding very badly.”

“All right, Norah,” said Fred. “You run and get a sponge and some warm water. Will.”

In a very short time they were all round their dear old playfellow. Fred bathed the foot with the warm water, while the others stroked him, and tried to make him forget the pain. The foot was, as Norah had said, very badly cut.

The children bound it up with some clean linen rag, and then took him into the kitchen. There they made him lie down in a warm corner of the room, while they sat and watched him.

“What a good quiet old fellow he was all the time we were washing his foot.” said Norah.

“Yes,” said Fred, “but I took care not to hurt him. Nothing would have done it so well as a sponge.”





“Suppose we have a talk about the sponge,” said Willie, “while we sit with Ponto.”

“Right,” said Fred. “What is the first thing any one would notice about the sponge?”

“It is porous or full of holes,” said Norah. “When it is put into water it absorbs or sucks up the water.”

“How can we get the water out again?” said Fred.

“By squeezing it,” said Will. “It is a soft body, and we can squeeze it.”

“What happens when we squeeze it, and then let go?”

“It springs back to its former size and shape,” said Will, “because it is elastic.”

“Yes,” said Fred, “and then it is ready to absorb water again.”

“Because the sponge is porous and elastic, soft and smooth, it is the very best thing we can use to wash a sore place of any kind.”

“Mother always uses a sponge,” said Norah, “to wash the baby. Baby’s skin is very tender, and the soft smooth sponge does not scratch it.”

#### SUMMARY

new paragraph Sponge is useful because it is porous, elastic, soft, and smooth.

## *Lesson 03*

---

### The Sponge

“Isn’t it strange?” said Fred, “We were talking about the sponge last night, and today we have had a lesson on it at school.

“I know now what a sponge is. I have often tried to think, but I could never make it out, till teacher told us today.”

“I never thought it could be an animal.” said Willie.

“It is not quite right to call it an animal,” said Fred. “Teacher says it is the skeleton of an animal, that’s all.”

“An animal,” said Norah. “Where can such an animal live?”

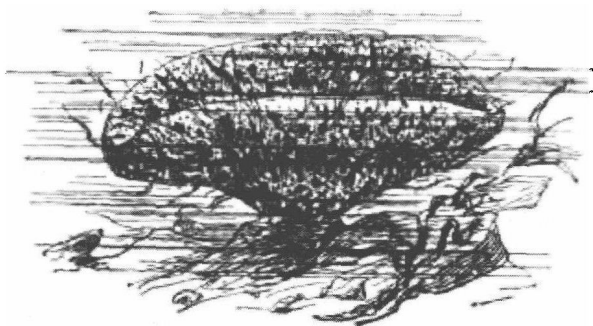
“It lives,” said Fred, “at the bottom of the sea, and a strange life it must be. It cannot move about, for it is fixed to the rocks by a sort of root.”

“I suppose,” said Norah, “as this is only the skeleton that we see, it must have some flesh on it when it is alive?”

“Oh yes,” said Fred, “but the flesh is only a sort of soft jelly. That all runs away, when it is taken out

of the water. Nothing is left but the tough, elastic, porous framework of its body.”

“But,” said Norah, “if it is an animal, I suppose it has a mouth; it must eat.”



“Well,” said her brother, “it has a great many mouths. All these little pores in the sponge are so many mouths. Teacher says it feeds by drawing itself up, and then swelling out again. You know that the sponge is very elastic.

“Every time it swells itself out, some water rushes in through these little pores, and with the water the food on which the sponge lives. When it draws itself up, the water is sent out again through the larger holes. The sponge keeps back all that it wants for food. That is not sent out with the water.”

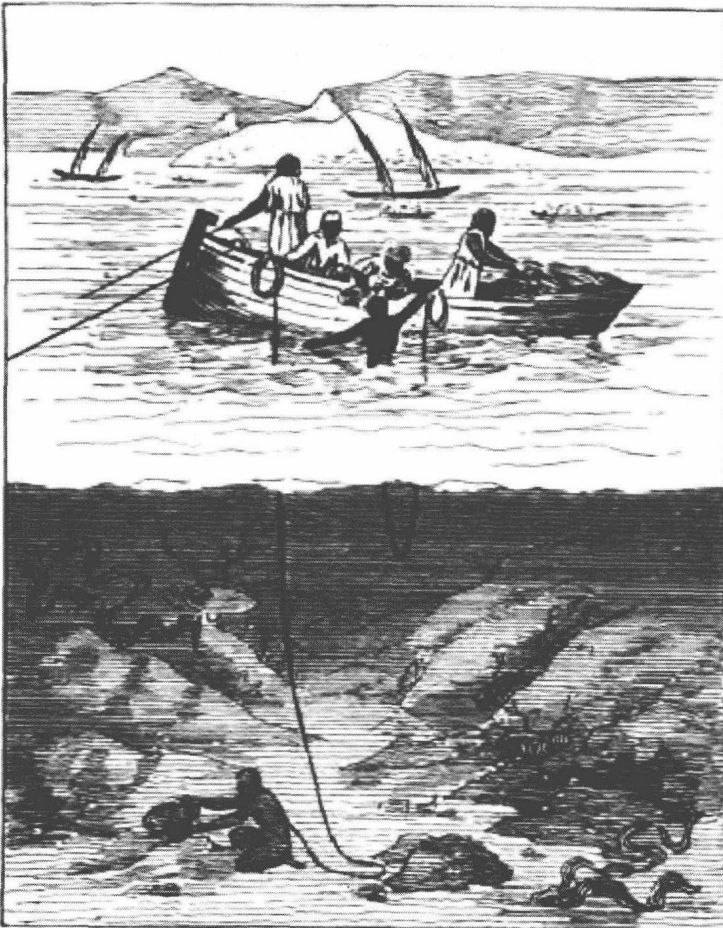
“What a strange animal!” said Norah. “How do they get the sponges, Fred?”

“Teacher told us all about it, didn’t he, Fred?” said Will. “Men have to go down to the bottom of the

sea to get them. They are called sponge-divers. I'm glad I am not a sponge-diver, though."

"Oh, do tell me all about it." said Norah.

"Well, these divers are trained to dive while they are boys. They are taken out to the place in a boat. When they are ready, they fix a large stone to their foot and slide down to the bottom, holding a rope in their hands.



“As soon as they get to the bottom, they cut away with a long knife as many sponges as they can. These they put into a bag slung round their neck. They can't stay under water more than three minutes, and then they are drawn up by the men in the boat.”

“What a dreadful life it must be!” said Norah.

#### SUMMARY

The sponge is the skeleton of an animal, that lives on the rocks at the bottom of the sea. Its pores are its mouths. Divers go down to the bottom of the sea to get the sponges.

## *Lesson 04*

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### Filters

“You know, Norah, when mother makes the coffee for breakfast, she pours it through a strainer.” said Fred.

“What is the strainer made of?”

“It is a sort of muslin bag.” said Norah.

“Quite right. But why does she use this bag?”

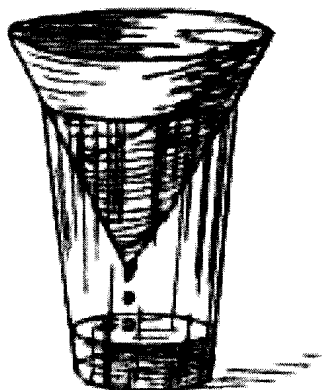
“The muslin is porous. The holes, or pores, in it are only large enough to let the clear liquid run through. The thick coffee-grounds cannot pass through them, and are left in the bag.”

“Teacher had a bag made of flannel. You know flannel is porous. We can see the pores in it. Well, he poured some muddy water in this bag, and held the bag over a basin. The pores were not large enough to let all the solid mud pass through. That was kept back, and the water, that dripped through into the basin, was nearly clear. Well then, he poured this into another bag made of some kind of cloth with still smaller pores. When the water came through this it was quite clear. All the little grains of

mud, that had passed through the pores in the first bag, were kept back now. The pores in this second bag were too small to let them pass.

“I thought at once of mother’s coffeestrainer. But teacher gave us another name for these porous bags. He calls them filters. He says when we pass a liquid through them, we filter it.

“I am going to show you a very pretty little filter now, made of blottingpaper. Teacher made some for the lesson. He gave me these to try with at home.



“See, there are three pieces of blottingpaper, cut round, and folded across the center at right angles. When I open them out, I can make a little funnel with them.

“Now I will stand the funnel in a tumbler, and pour into it some of this chalk and water. See, the liquid looks thick and white like milk. Watch what happens when I pour it into the filter. Drop by drop, the water trickles through the pores of the blottingpaper. But it is clear water now. All the little pieces of solid chalk, that were floating in the water, are left behind in the blotting-paper. The blotting-paper is a filter. It filters the liquid I put into it.”



**SUMMARY**

Filters are made of porous substances. They let the clear water pass through their pores, but keep back the little pieces of solid matter. Blotting-paper is porous; it makes a good filter.