

# Troll

MICRO

COURSEWARE

APPLE DISK  
Apple II/II+ /IIe/IIc  
Applesoft, 48K

## THUNDER & LIGHTNING



### A TROLL LEARNING CENTER

**This unit contains:** An "I CAN READ" Book  
with matching READ-ALONG Cassette, Guide  
and **MICRO-SOFTWARE Disk.**

Dennis Kehr

# A TROLL LEARNING CENTER

Here's the perfect combination for helping children build strong reading and learning skills.

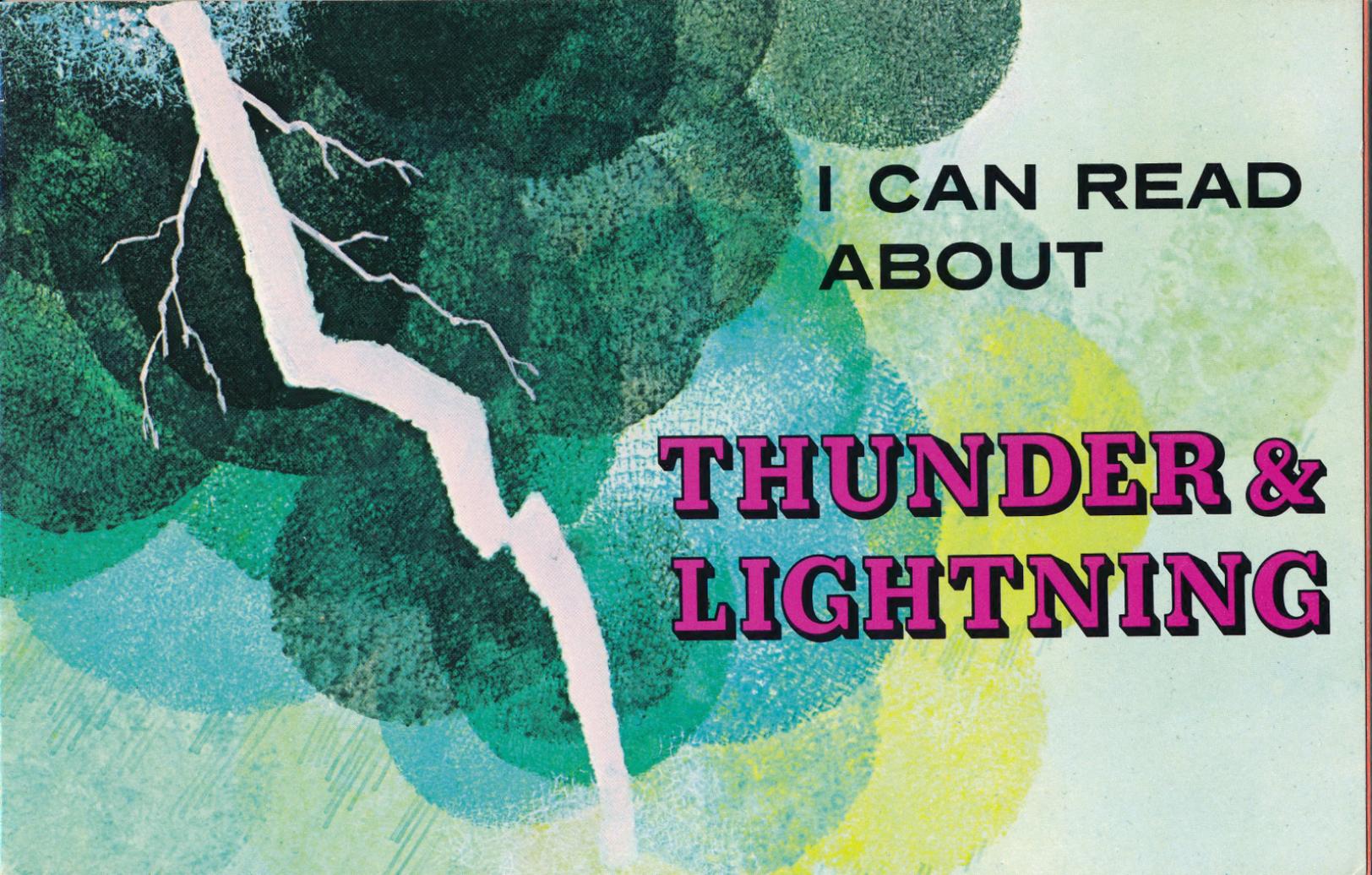
Children start with the I CAN READ book first, or follow along as they listen to the lively word-for-word cassette. Then they turn to the micro-software for fun-filled computer activities that focus on learning and language skills.

## **THIS UNIT CONTAINS:**

- a 48-page "I CAN READ" Book
- matching READ-ALONG Cassette
- a User's Guide
- a MICRO-SOFTWARE Disk with 4 exciting learning games

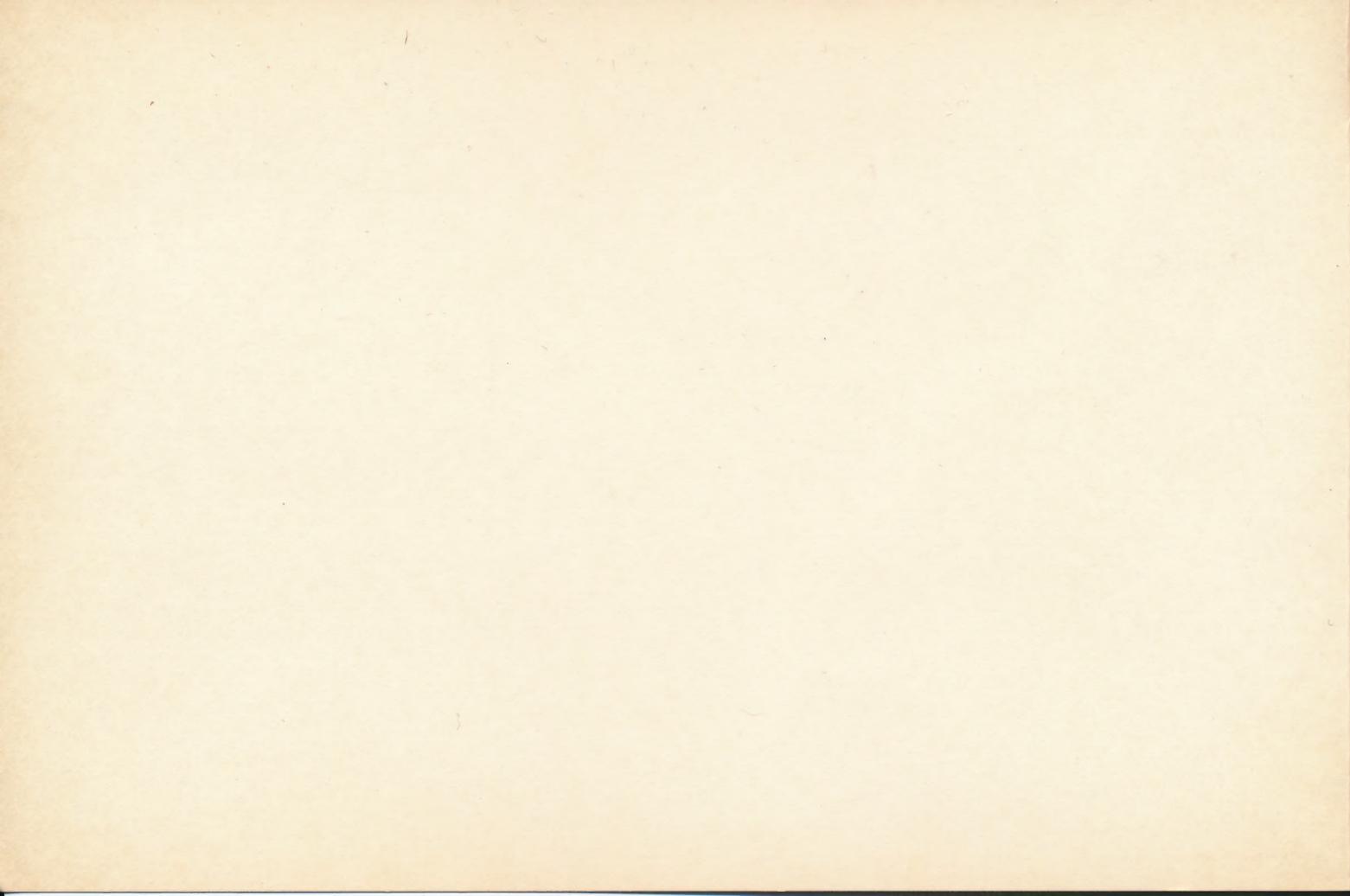
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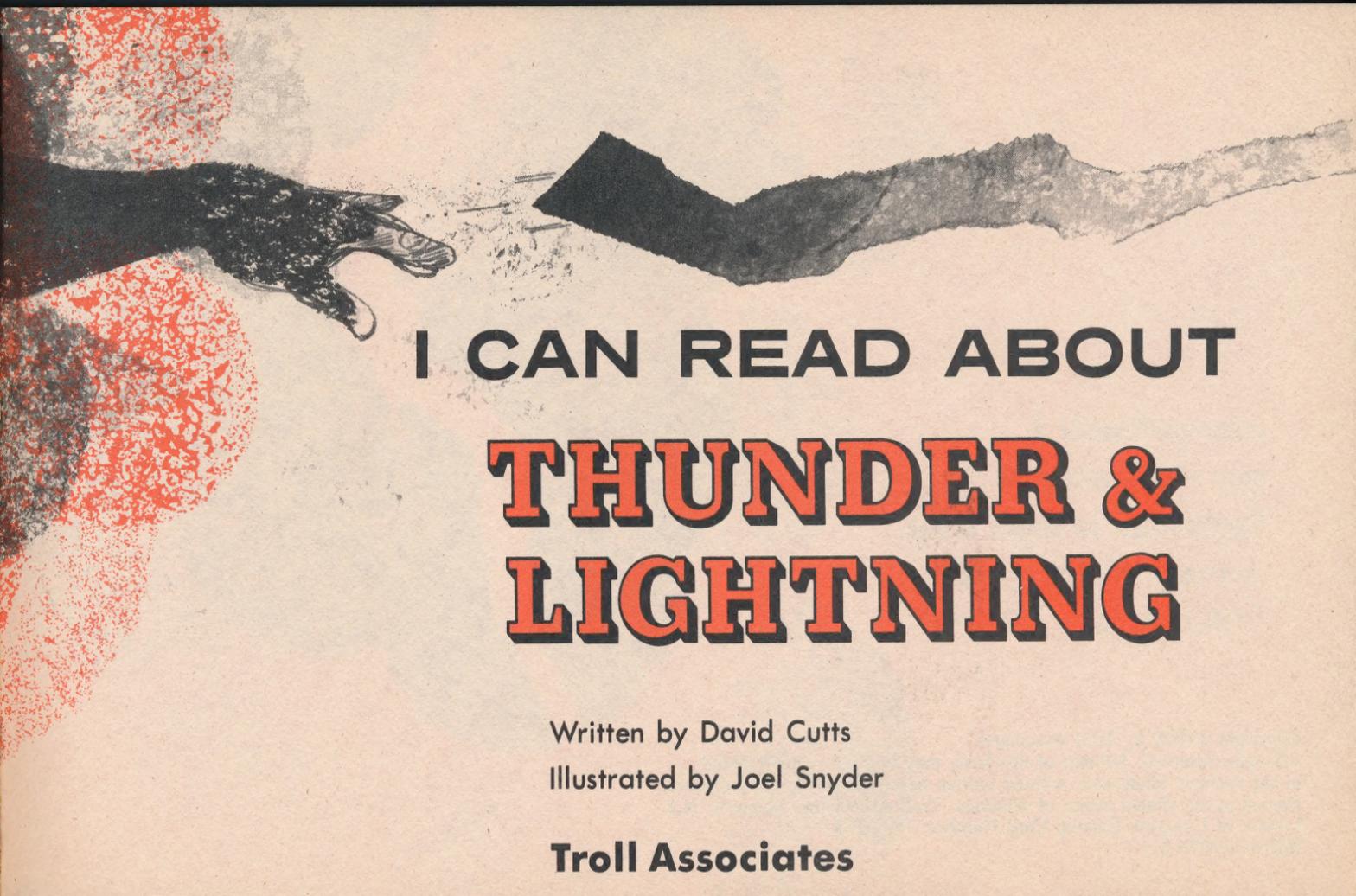
**I CAN READ  
ABOUT**

**THUNDER &  
LIGHTNING**



D. Kehr





I CAN READ ABOUT

**THUNDER &  
LIGHTNING**

Written by David Cutts

Illustrated by Joel Snyder

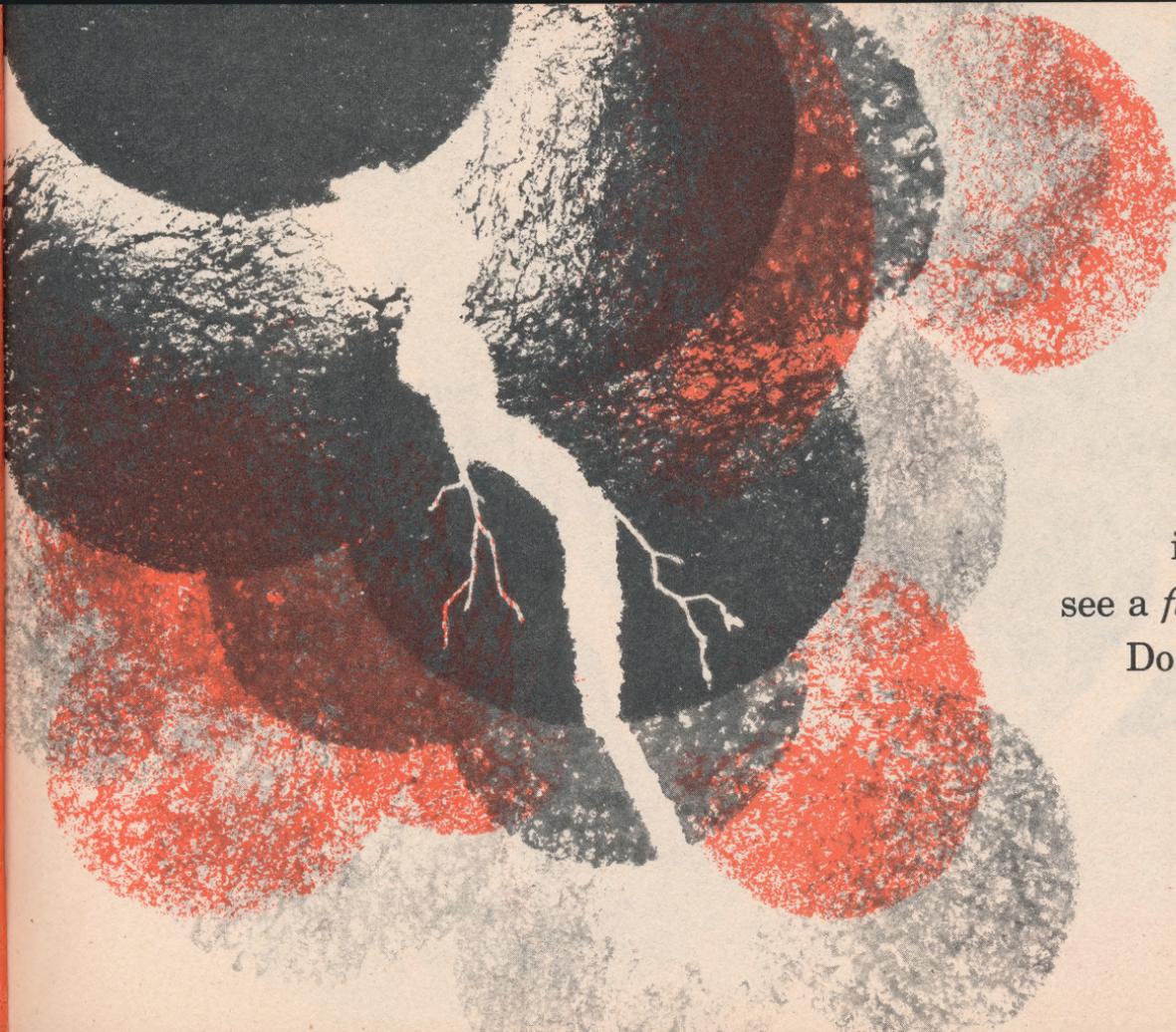
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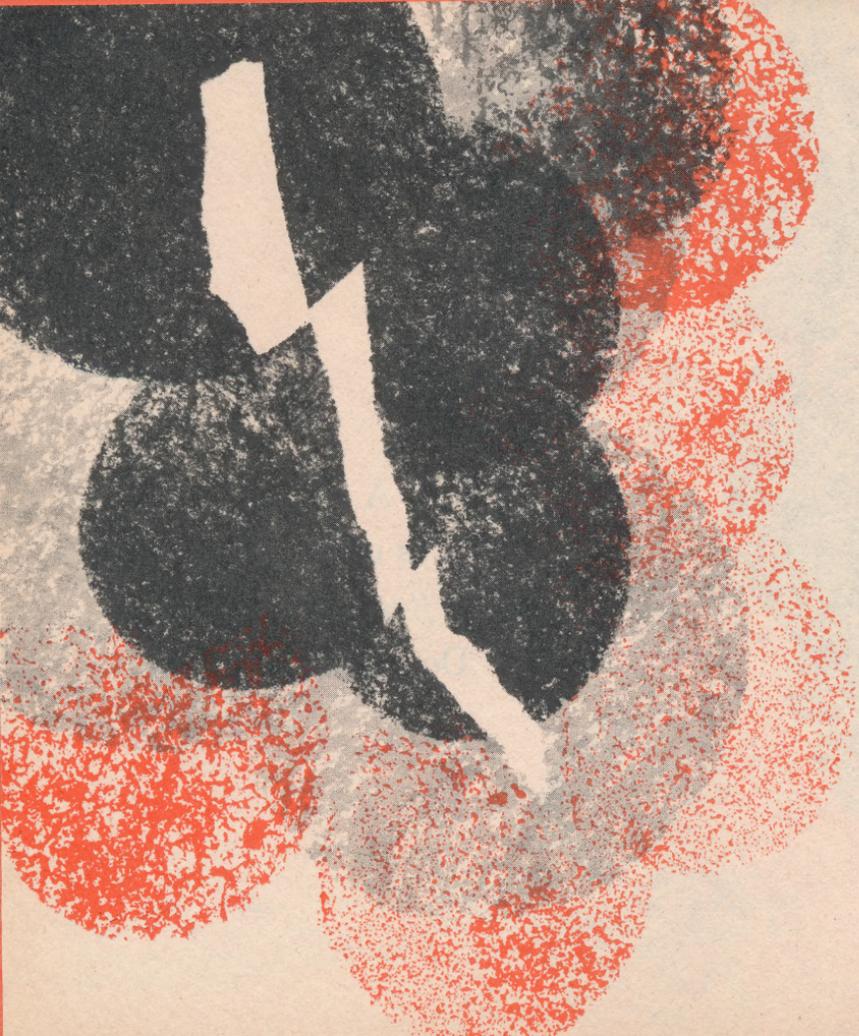
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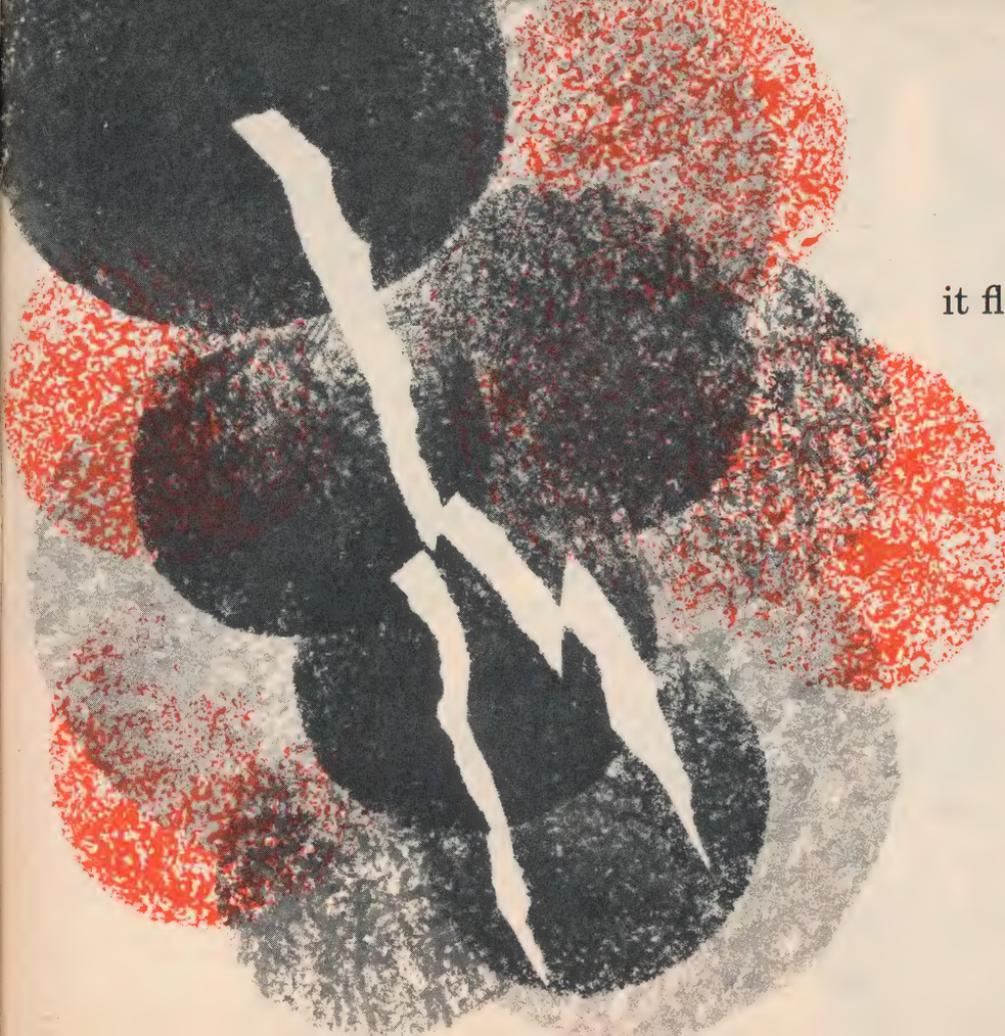
ISBN 0-89375-217-7



A thunderstorm  
is coming. Do you  
see a *flash* of lightning?  
Do you hear a *crash*  
of thunder?



Sometimes  
the lightning  
follows a zigzag pattern  
across the sky.



Sometimes  
it flashes along a forked path  
in the sky.  
Sometimes the thunder  
is low and rumbling.  
And sometimes it booms  
like a cannon.

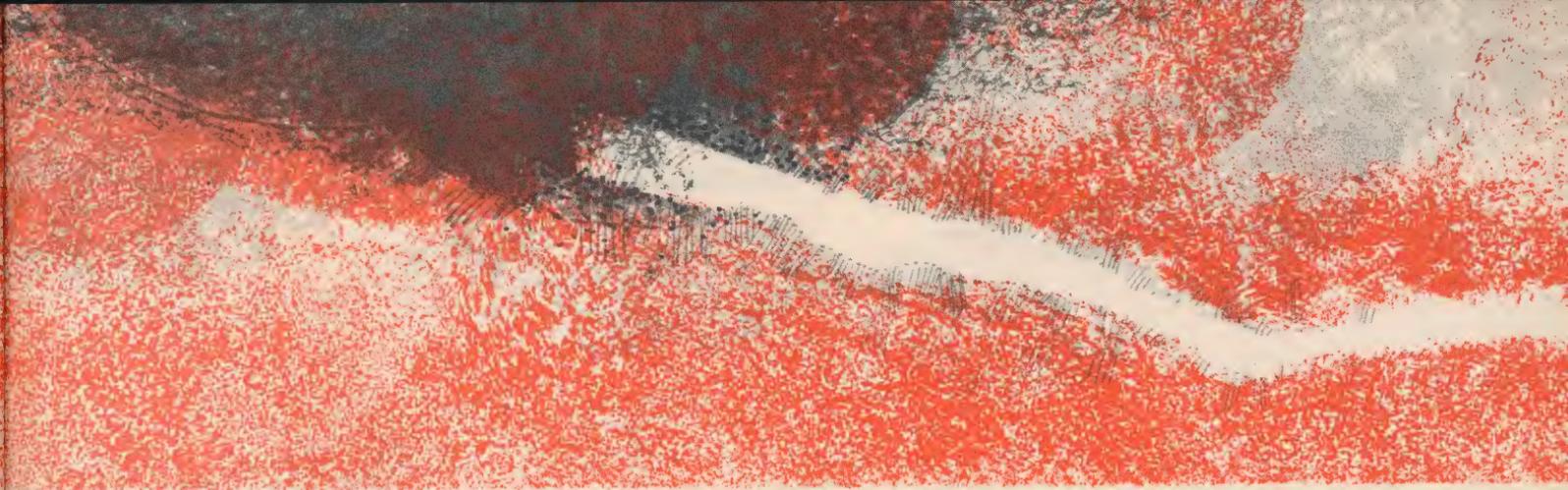




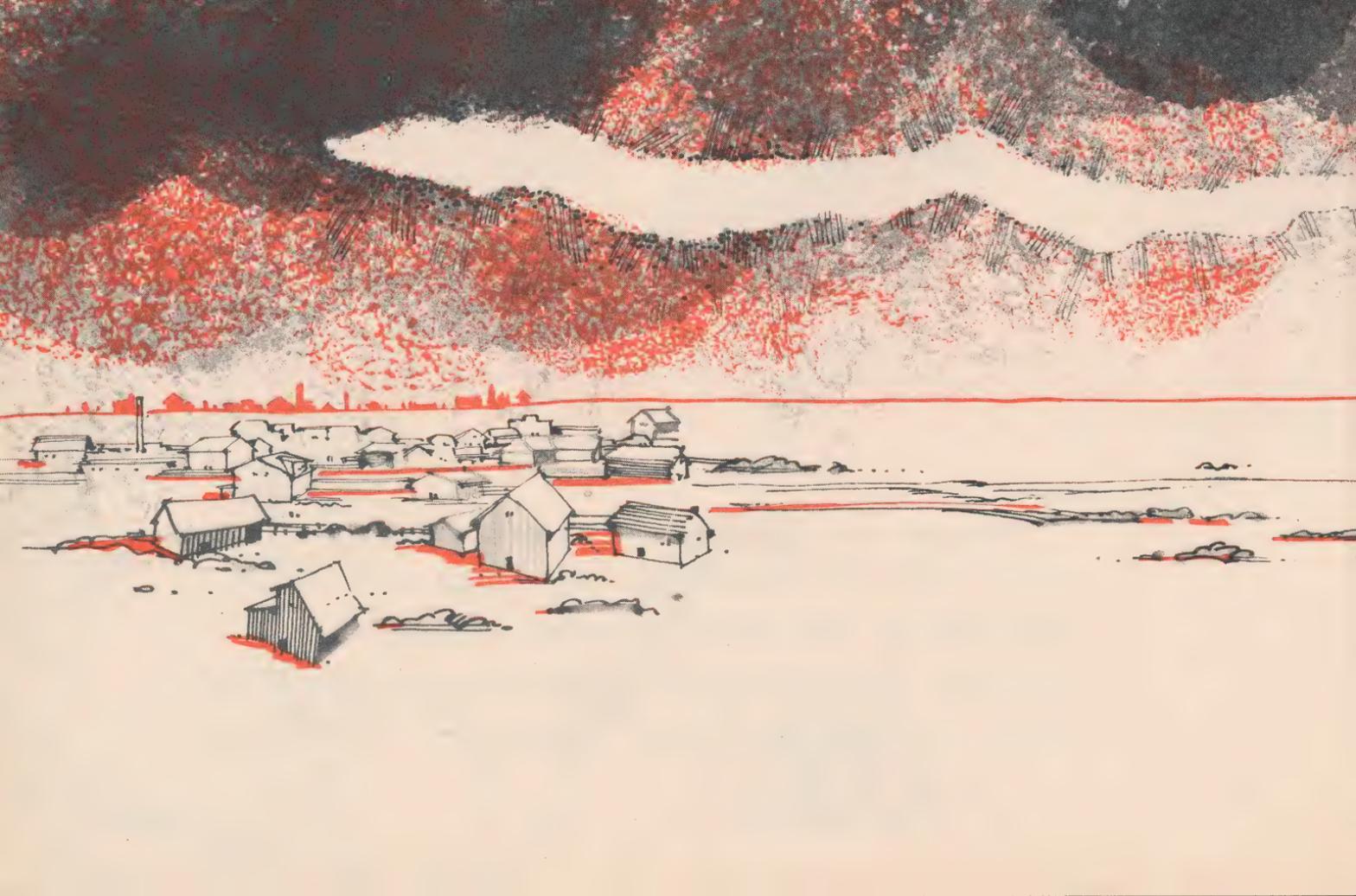
Long ago, people thought that thunder and lightning were caused by the gods.

The Ancient Greeks thought there was a fire god who hammered thunderbolts and lightning streaks on his anvil in the sky. Then he gave them to Zeus, the father of the gods, who hurled them at his enemies.





Thunder and lightning can happen anywhere—from the North Pole to the South Pole—all around the world. Scientists say that lightning flashes millions of times every day. It streaks across the sky above mountains and plains, and it flashes through the sky above stormy seas.



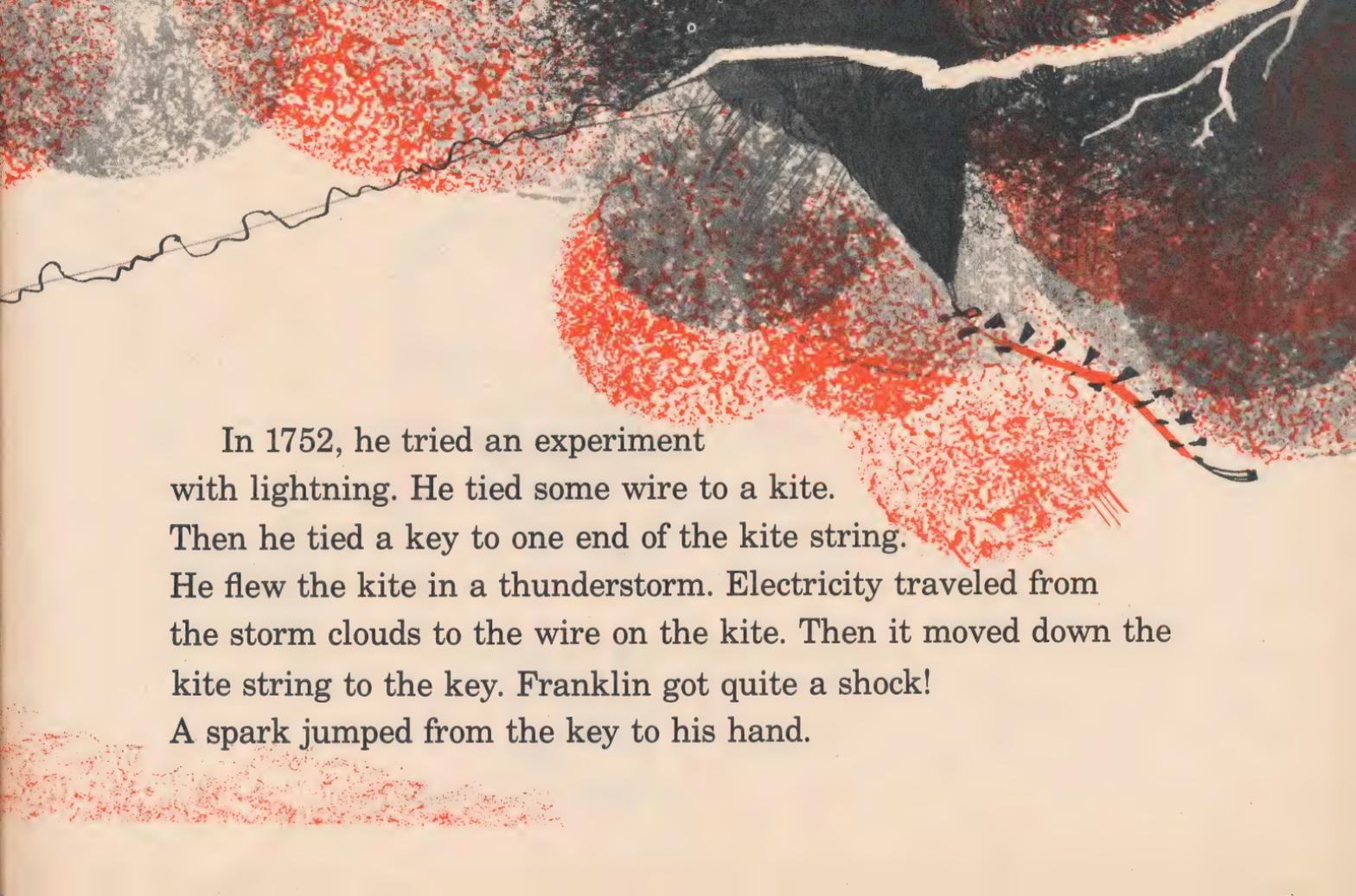


What is lightning, anyway?

Lightning is a spark of electricity—a spark so big that it lights up the sky. Some lightning bolts may be as long as 20 miles, or 32 kilometers.

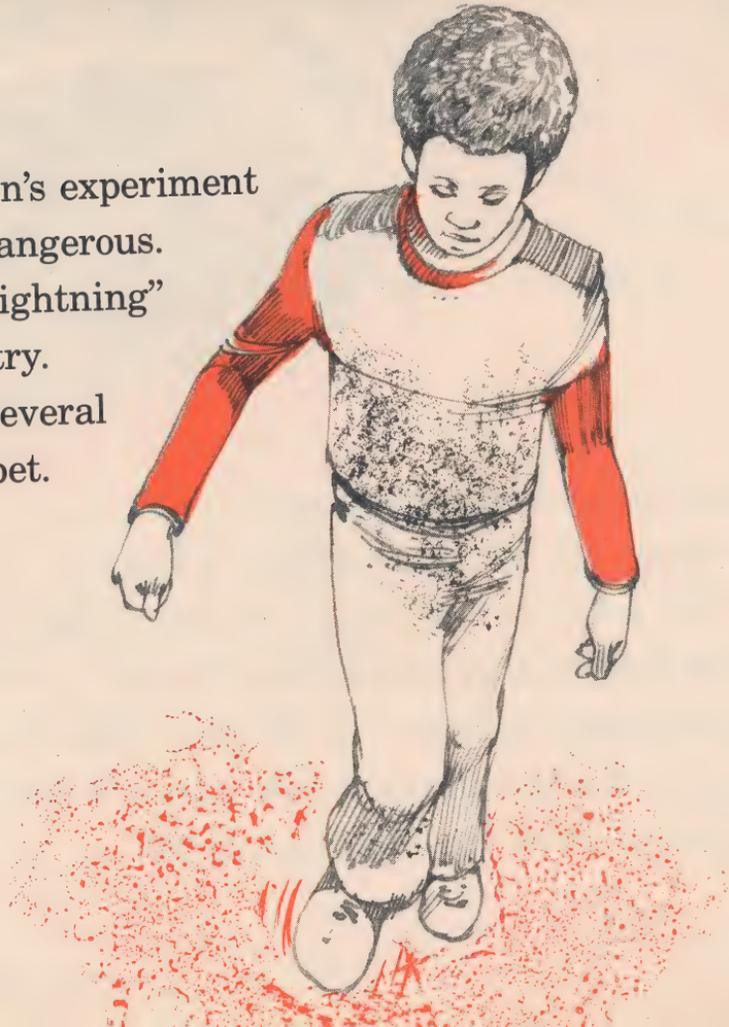
Benjamin Franklin proved that  
lightning is made of electricity.

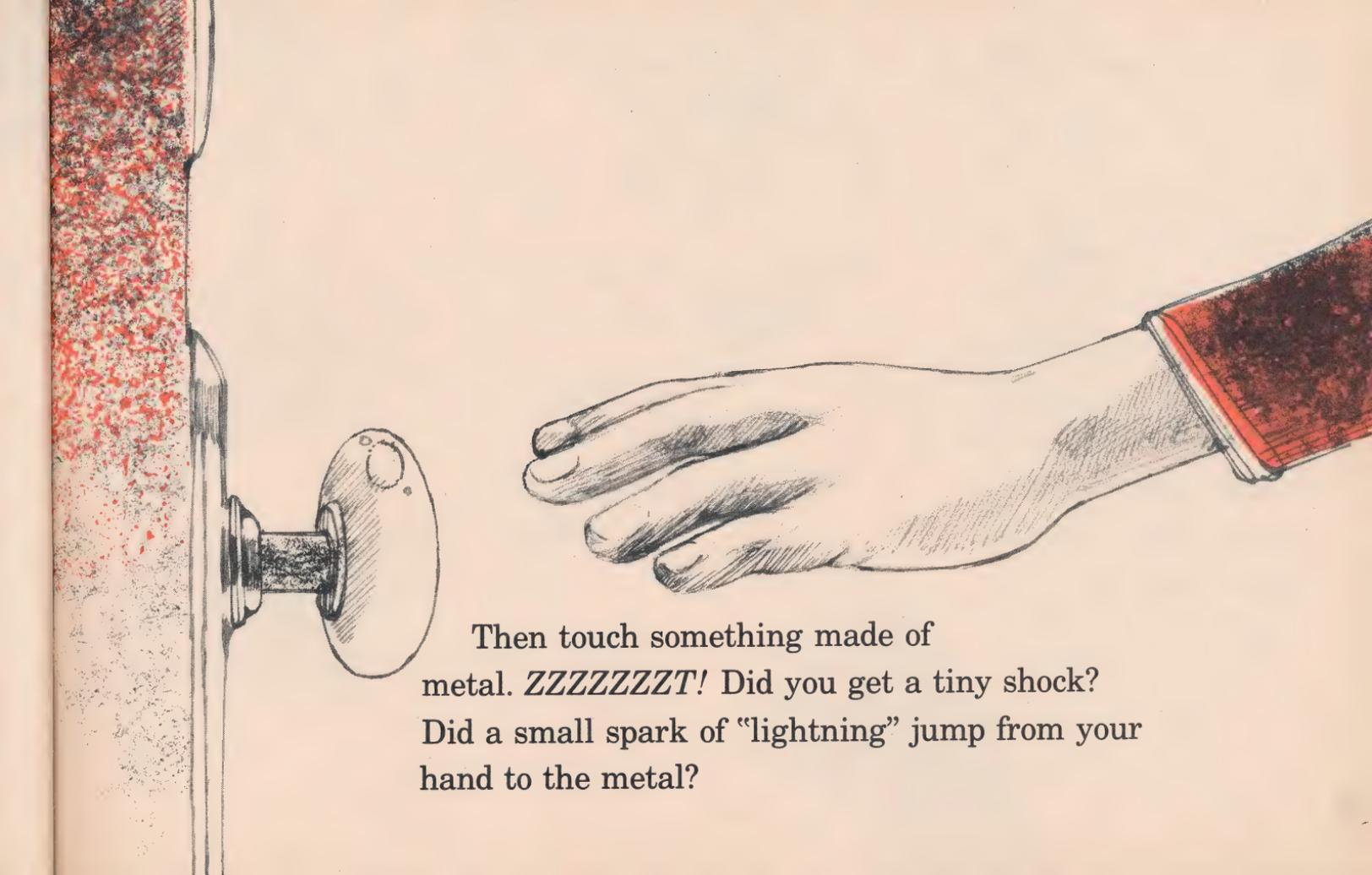


The illustration is a textured, abstract representation of a storm. It features large, irregular shapes in shades of red, orange, and grey, suggesting heavy, dark clouds. A jagged, white lightning bolt strikes down from the upper right. A thin, black line representing a kite string runs diagonally across the scene, ending in a small key. The overall style is reminiscent of a watercolor or ink wash painting with a focus on color and texture.

In 1752, he tried an experiment  
with lightning. He tied some wire to a kite.  
Then he tied a key to one end of the kite string.  
He flew the kite in a thunderstorm. Electricity traveled from  
the storm clouds to the wire on the kite. Then it moved down the  
kite string to the key. Franklin got quite a shock!  
A spark jumped from the key to his hand.

Benjamin Franklin's experiment with lightning was dangerous. But there is a safe "lightning" experiment you can try. Just scuff your feet several times on a thick carpet.

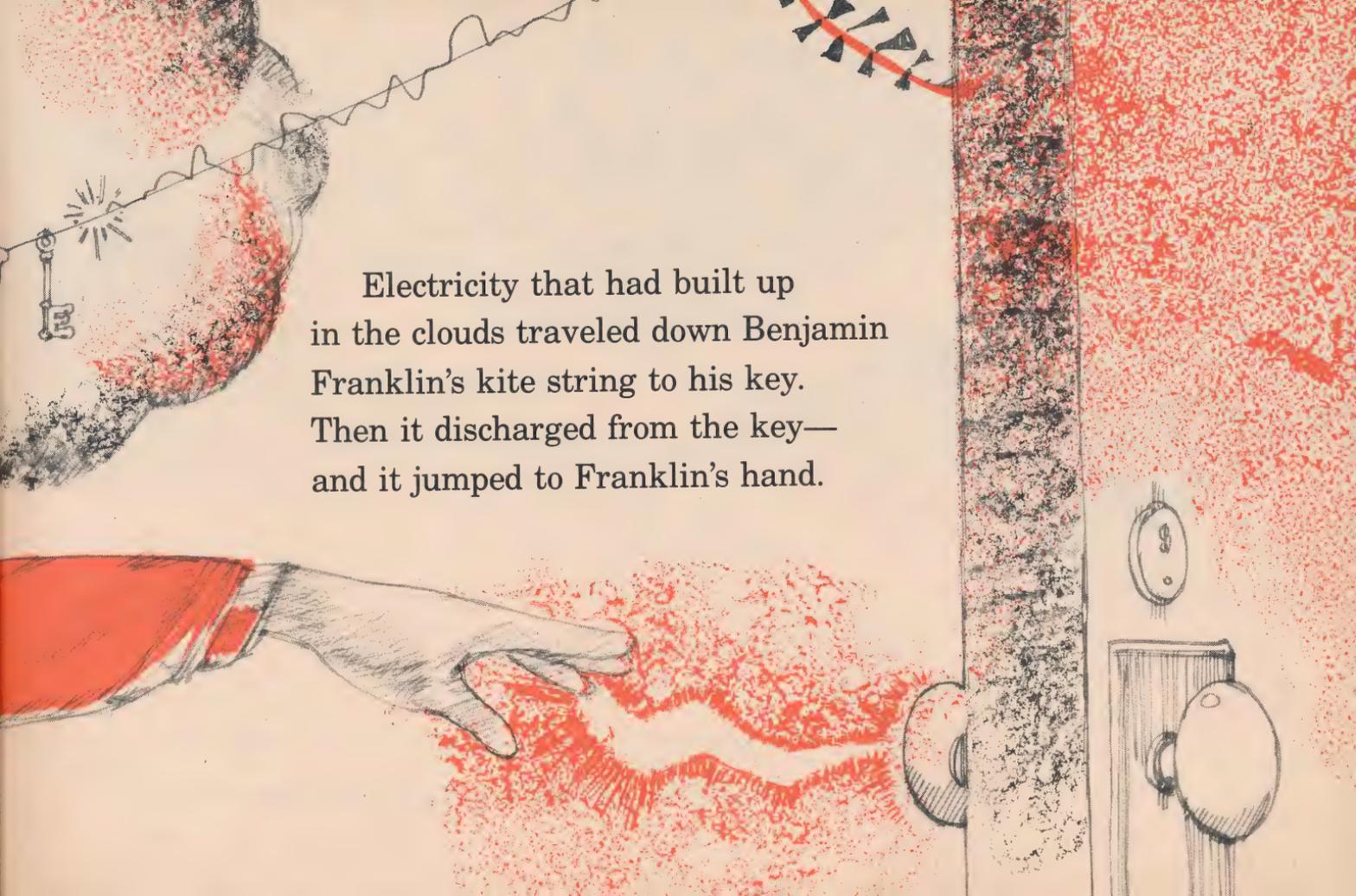


An illustration showing a hand reaching towards a door handle. The hand is rendered in black ink with fine lines for shading. The sleeve of the hand is a dark red color with a textured, stippled appearance. The door handle is a simple, round, metallic-looking knob. The background is a light, off-white color. The overall style is that of a classic educational or scientific illustration.

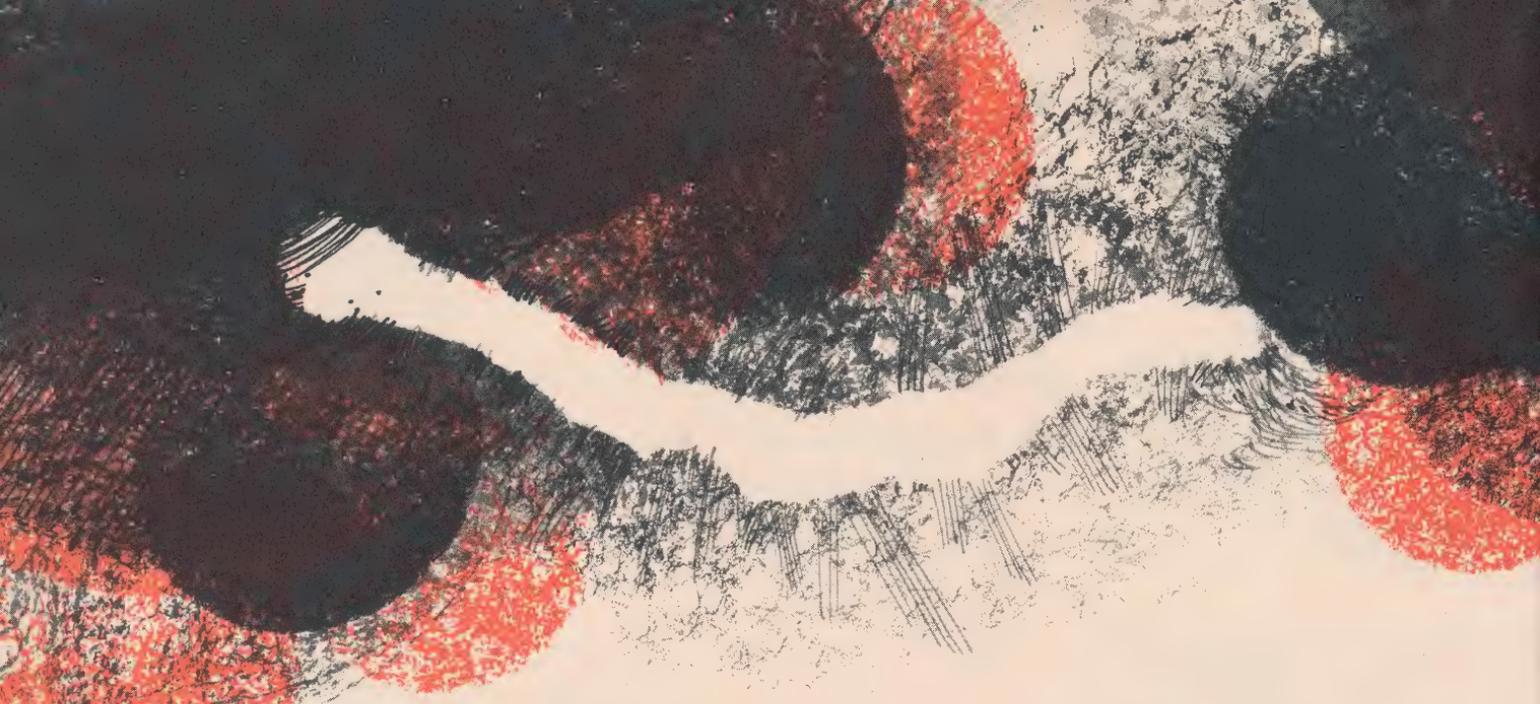
Then touch something made of metal. **ZZZZZZZT!** Did you get a tiny shock? Did a small spark of “lightning” jump from your hand to the metal?

Why will a spark jump from your hand? Scuffing along a carpet builds up an electrical charge on you. Then the electrical charge *discharges*—it jumps from your hand to the metal you touched.



An illustration depicting Benjamin Franklin's experiment. A kite string is shown with a key attached to it. A red, spark-like discharge is shown jumping from the key to a hand reaching out from the left. The background is filled with red speckles, suggesting a stormy atmosphere. On the right, a vertical structure, possibly a window frame or door, is visible with a circular knob and a rectangular handle.

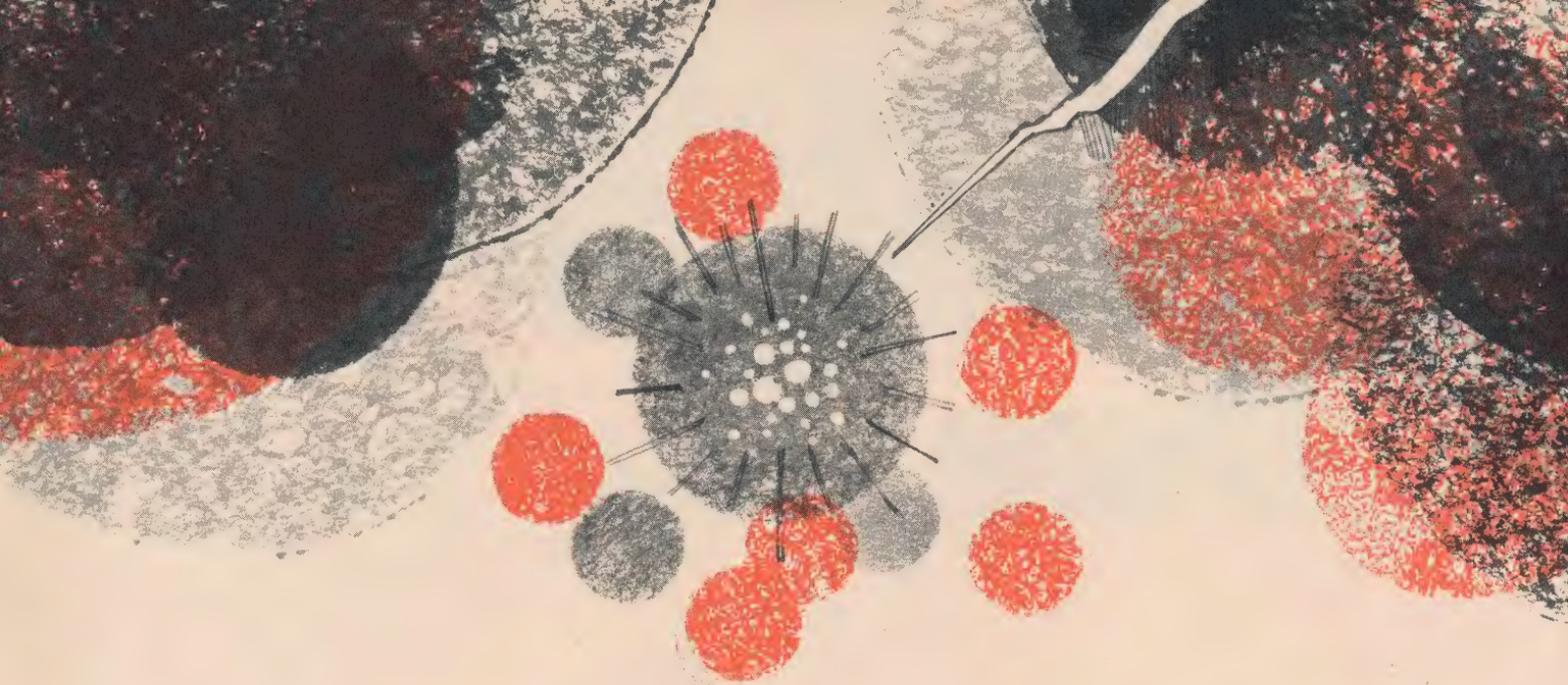
Electricity that had built up  
in the clouds traveled down Benjamin  
Franklin's kite string to his key.  
Then it discharged from the key—  
and it jumped to Franklin's hand.



Lightning can jump in several ways.  
Sometimes it stays inside a cloud when it jumps.  
Sometimes it jumps to another cloud. Sometimes it  
jumps out of a cloud and shoots across the sky.



And sometimes it jumps toward the ground.



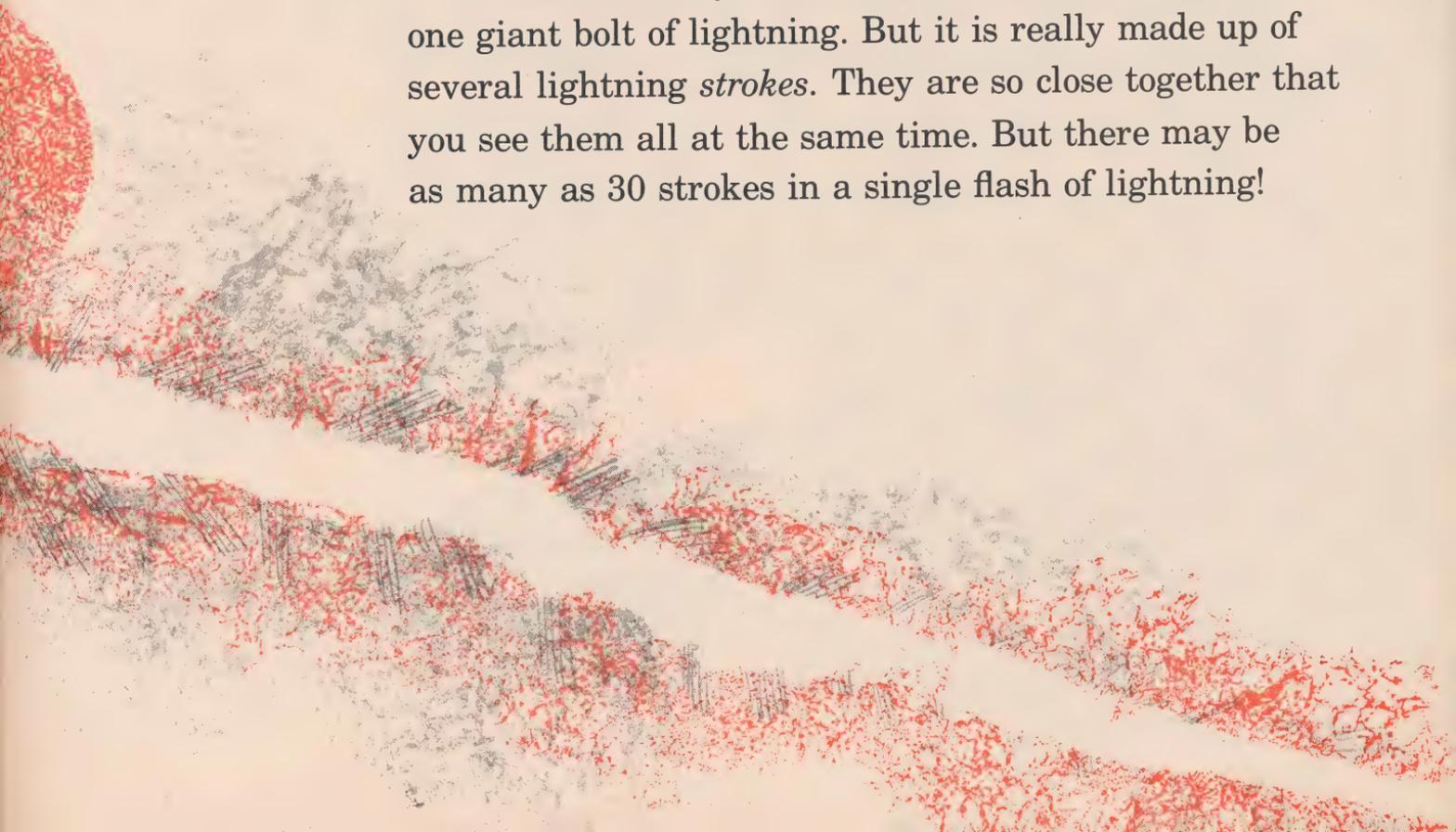
Why does electricity build up in the clouds?  
Scientists say that this happens because tiny drops of water in the clouds have an electric charge. A storm cloud is something like a battery.



As the drops move through the clouds,  
the electric charge builds up higher and higher.  
Then, suddenly, the electricity discharges  
in a flash of lightning.



When electricity flashes from a cloud, it looks like one giant bolt of lightning. But it is really made up of several lightning *strokes*. They are so close together that you see them all at the same time. But there may be as many as 30 strokes in a single flash of lightning!

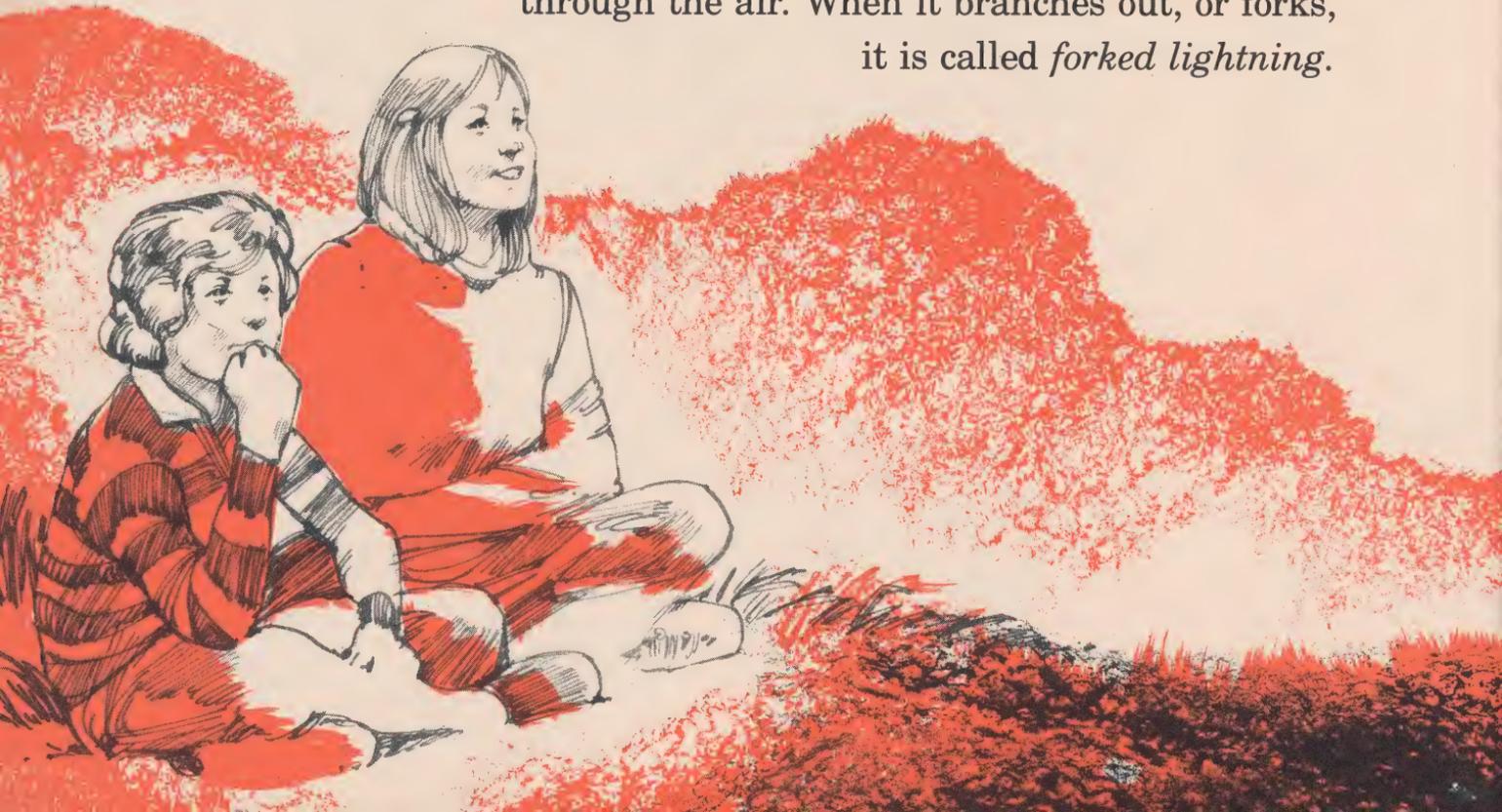




Sometimes streak lightning turns into another kind of lightning. It looks like links in a chain, or beads on a string. Then it is called *chain lightning*, or *bead lightning*.

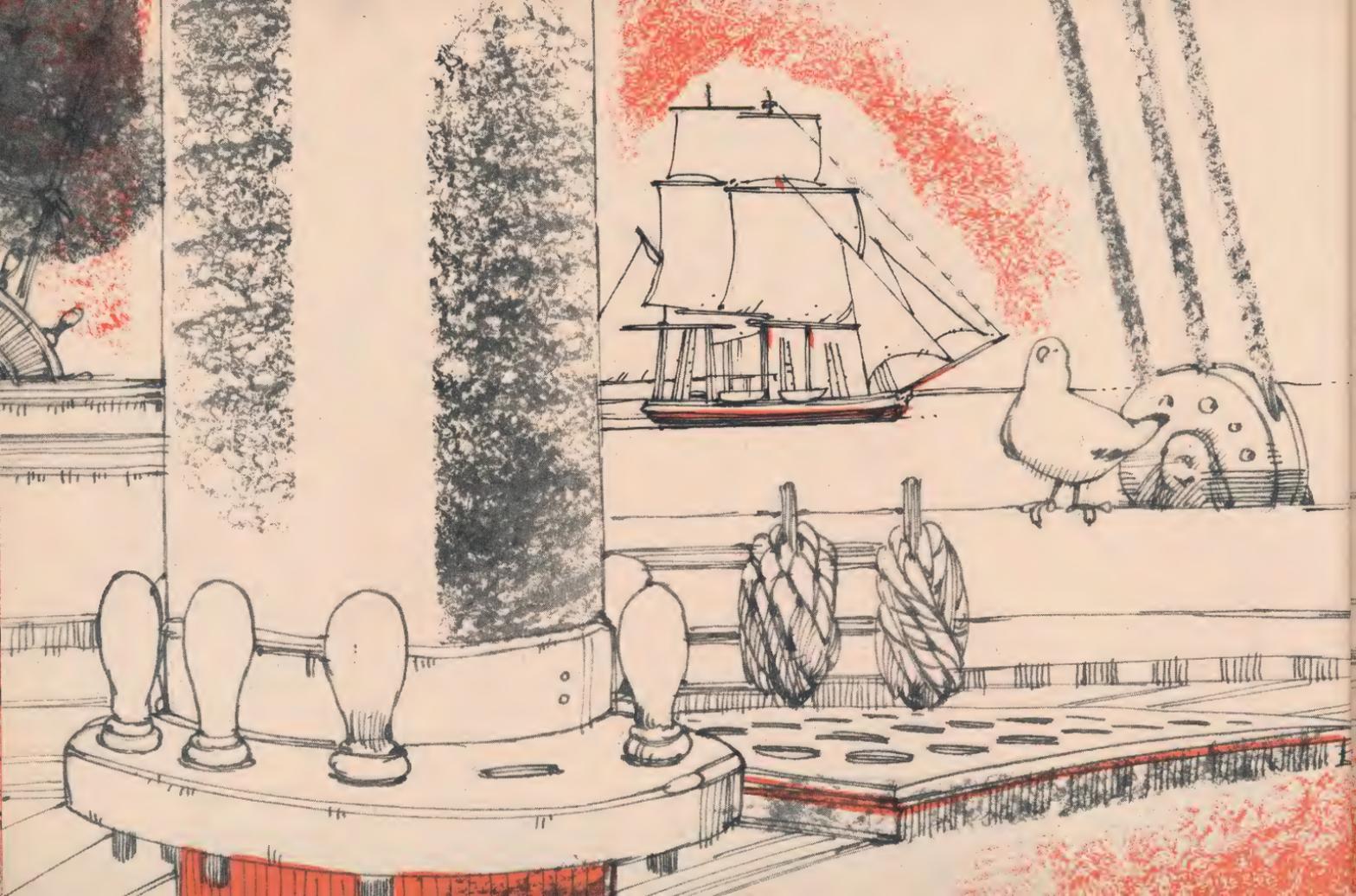


Sometimes, lightning follows two or more paths through the air. When it branches out, or forks, it is called *forked lightning*.



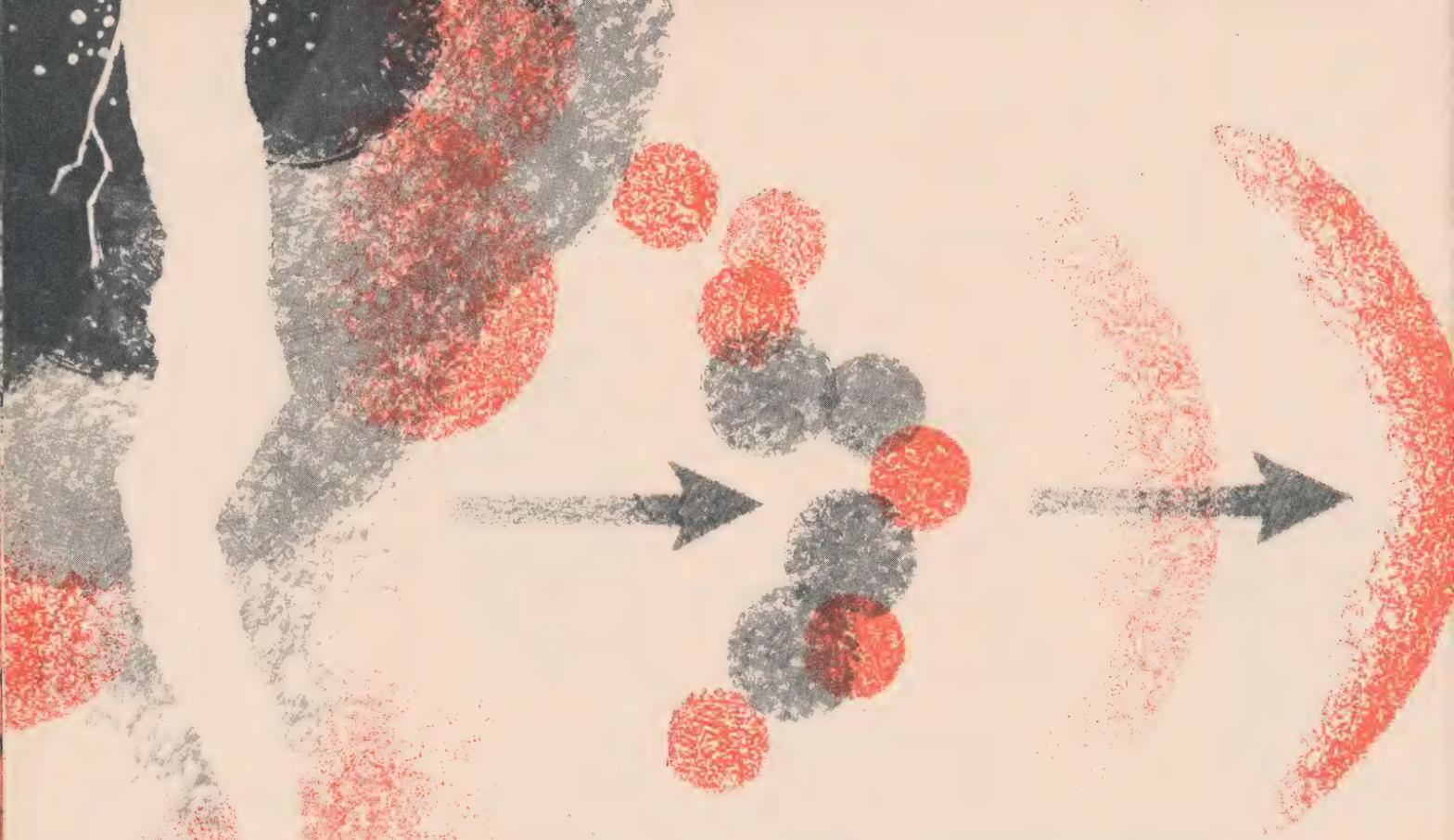
On warm summer evenings, you may see something strange. The sky seems to flash brightly—but there is no sign of lightning or thunder. This is *heat lightning*. It comes from storms that are very far away.





Another strange sight is lightning with no flash at all. It is called St. Elmo's fire. It looks like a glow on the top of tall pointed objects. An electrical charge that has built up on the objects is leaking away into the air. St. Elmo was a favorite saint of old-time sailors. When they saw St. Elmo's fire on the top of a ship's mast, the sailors thought it was a sign of good luck.





Did you know that lightning causes thunder?



When lightning flashes through the air, the temperature of the air heats up. The hot air expands and bangs into cooler air nearby. The moving air creates sound waves that rush away from the lightning flash. When the sound waves reach your ears, you hear thunder.



Thunder from nearby lightning sounds loud and sharp. This is called a *thunderclap*. When lightning is far away, you may hear only a distant booming sound.

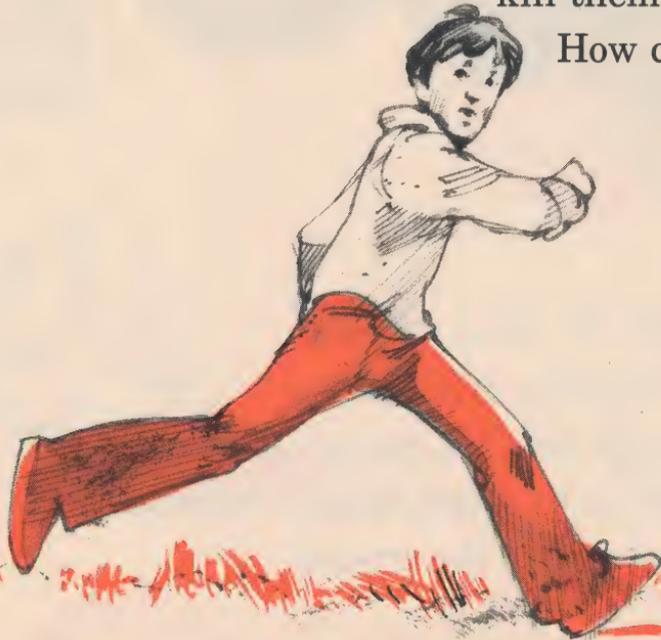
Another kind of thunder is called *long thunder*. This is a rolling, rumbling kind of thunder. Sometimes it is caused by a thunderclap that is echoing across the countryside.

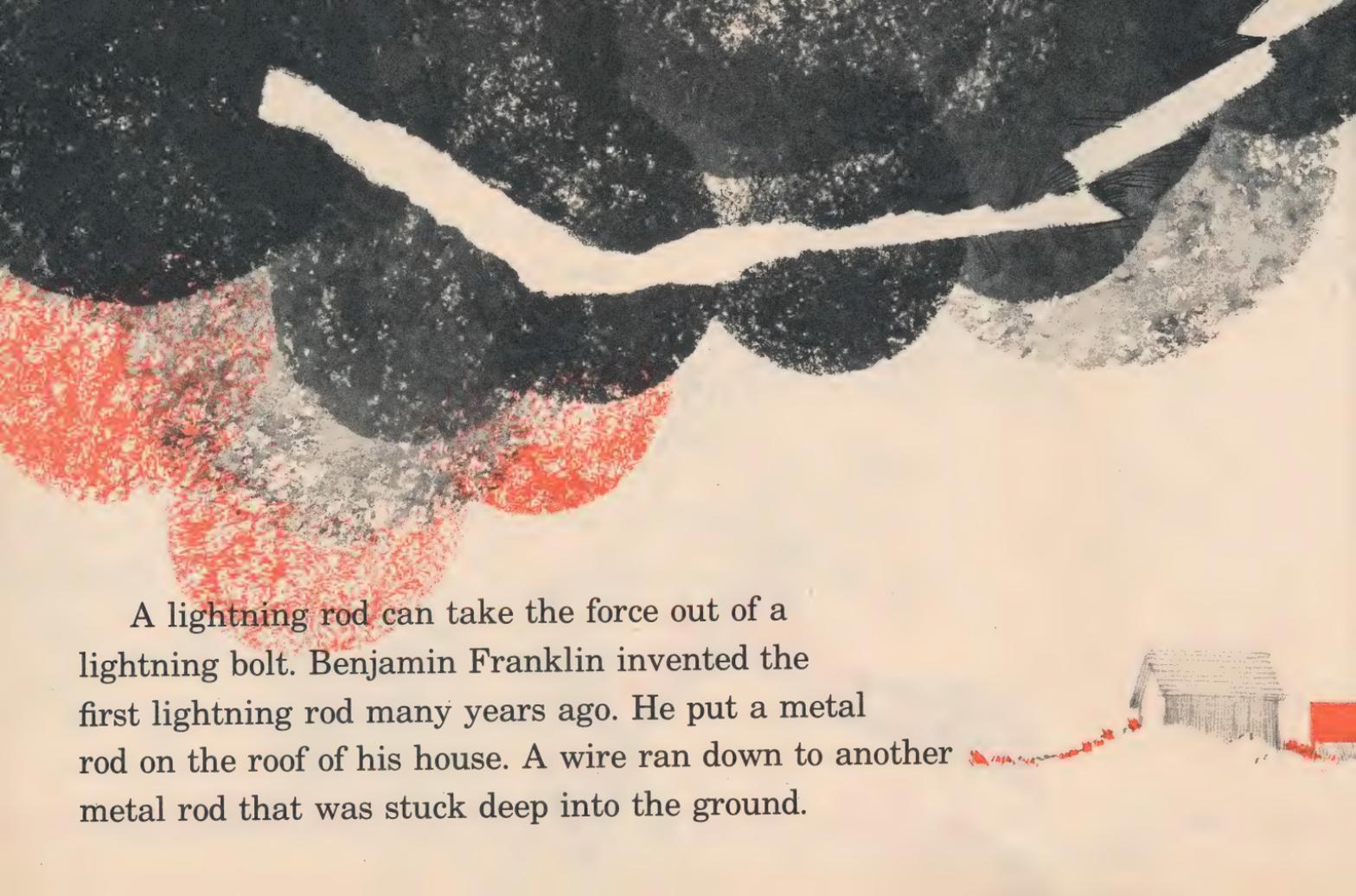




Loud thunder and bright flashes can be scary. And lightning can be dangerous. It can melt solid metal objects. It can split big trees apart. It can hurt people—and even kill them.

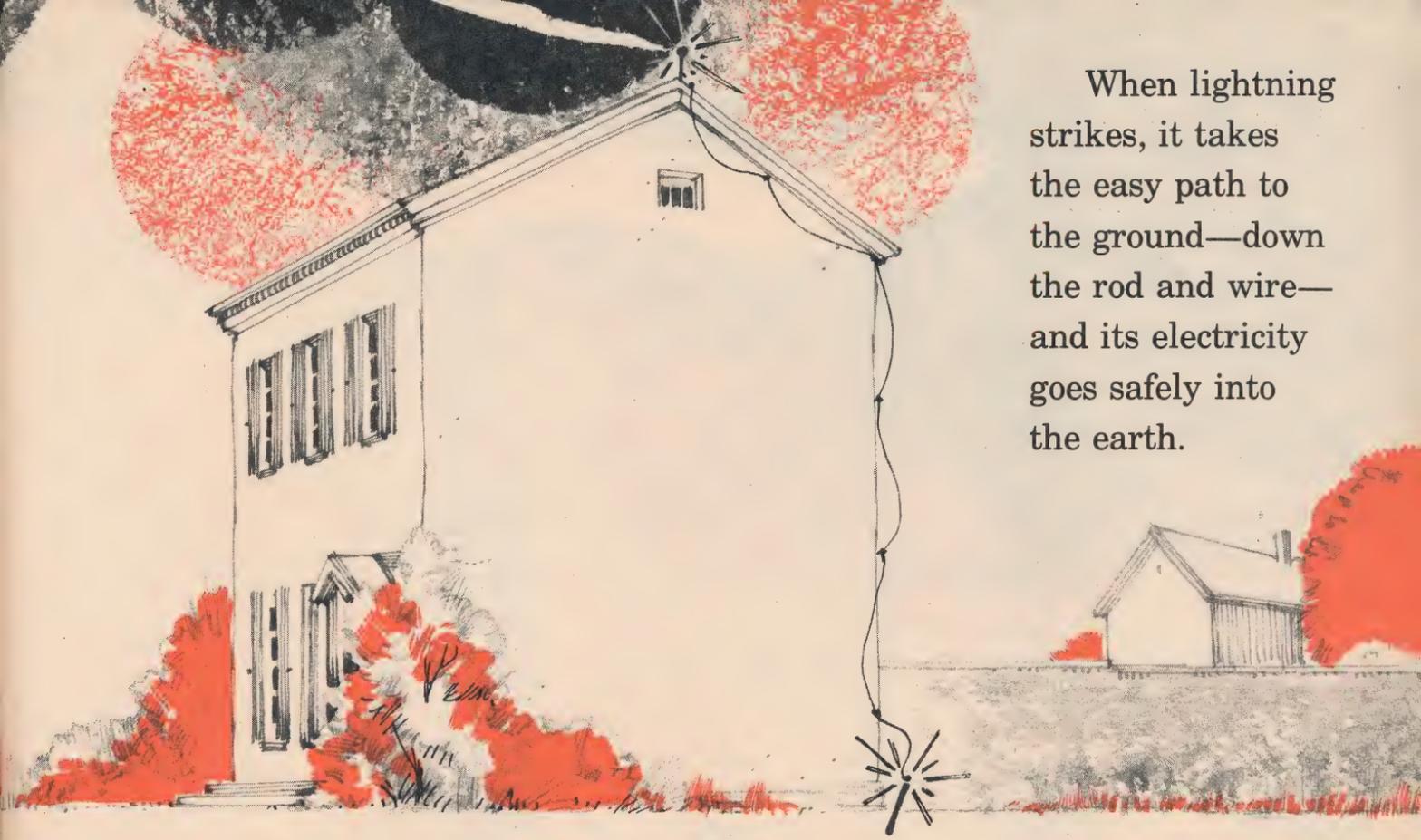
How can we protect ourselves?





A lightning rod can take the force out of a lightning bolt. Benjamin Franklin invented the first lightning rod many years ago. He put a metal rod on the roof of his house. A wire ran down to another metal rod that was stuck deep into the ground.

When lightning strikes, it takes the easy path to the ground—down the rod and wire—and its electricity goes safely into the earth.

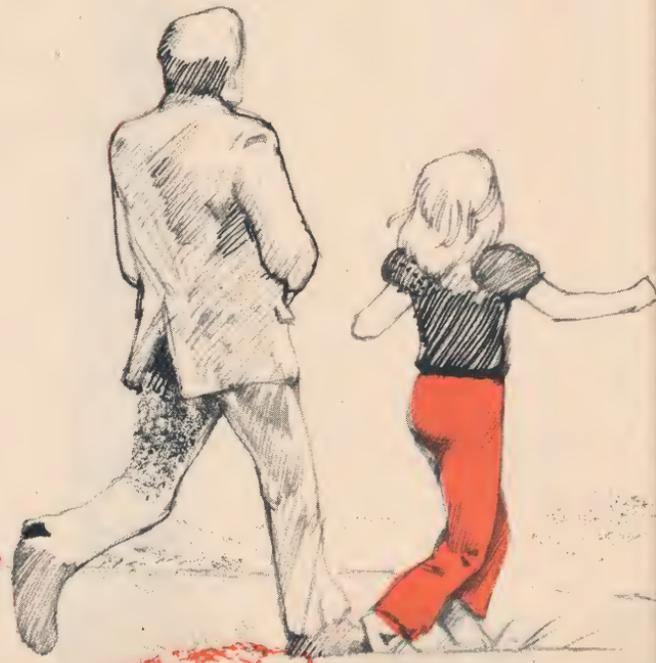




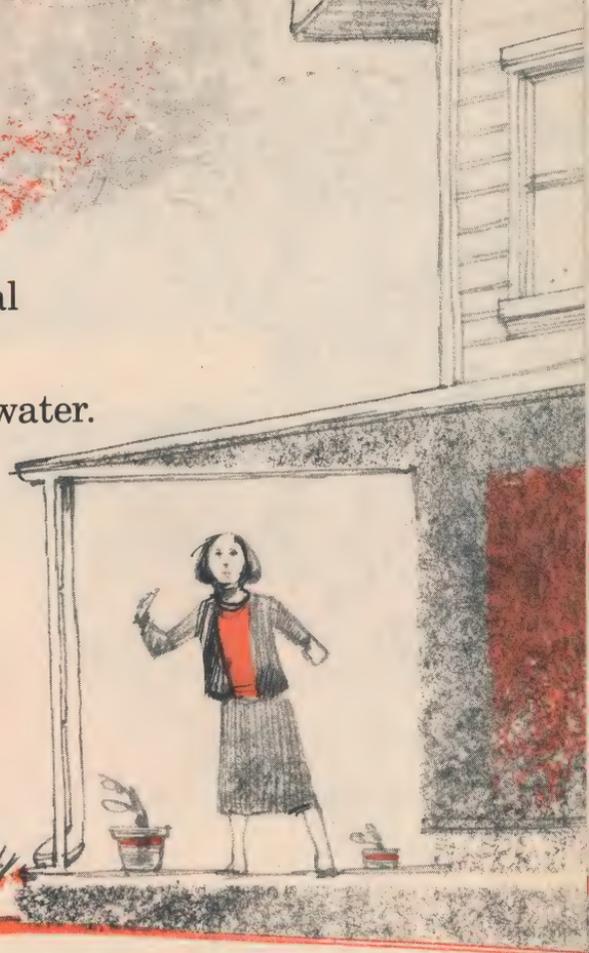


A tall steel building is like a giant lightning rod. The building has many metal parts that connect it to the ground. When lightning strikes, it passes harmlessly into the ground.

Here are some *do's* and *don'ts* to remember during a thunderstorm:



*Do* stay inside a car, or inside a house.  
*Do* stay in a low place—away from metal  
fences—if you cannot reach shelter.  
*Don't* stand under a single tree or near water.  
*Don't* go out in a boat, or into a tub or  
shower.





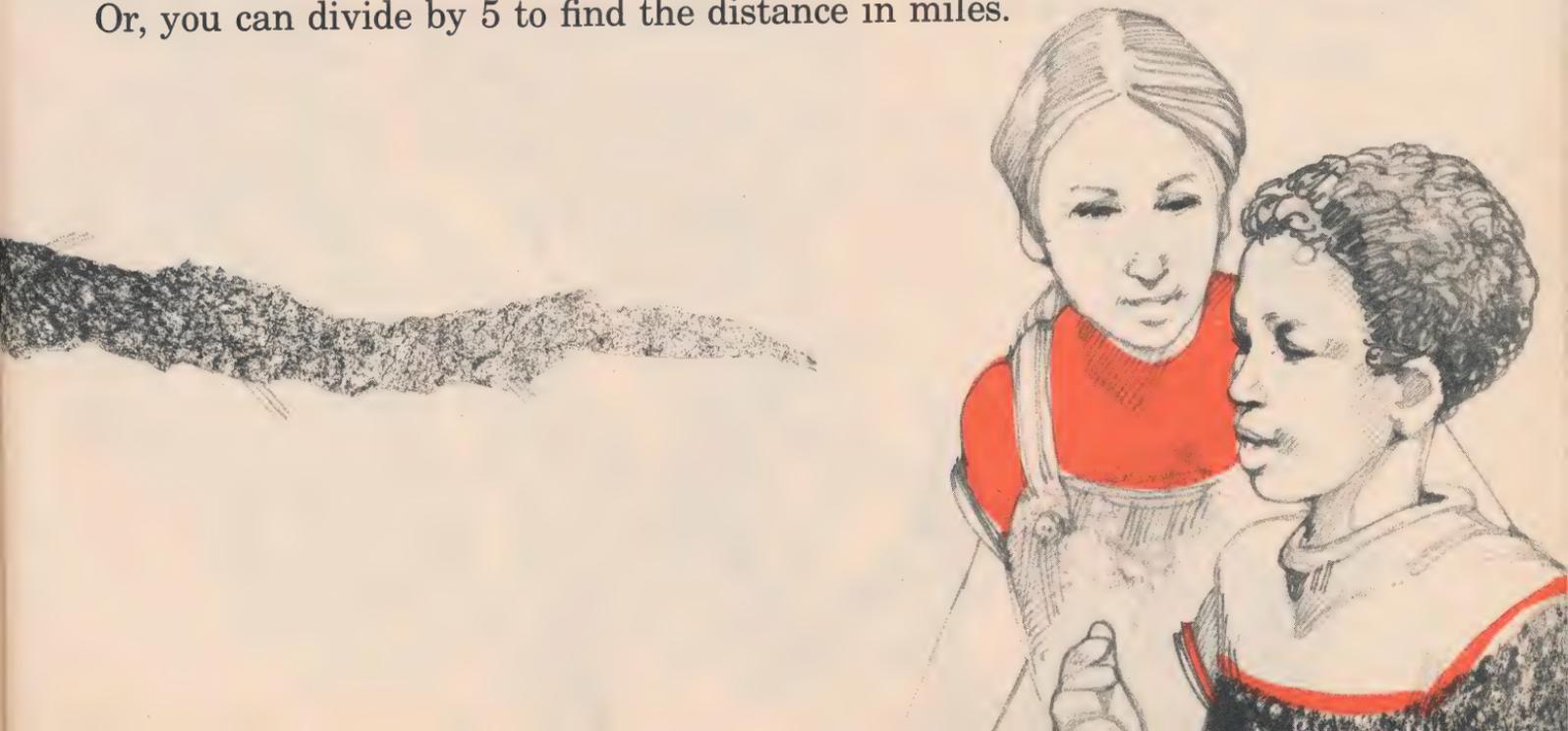
It's fun to figure out how far  
you are from a flash of lightning.

Here's how to do it.

*First*, count the seconds between the flash of lightning and the crash of thunder.

*Then* divide that number by 3 to find the distance in kilometers.

Or, you can divide by 5 to find the distance in miles.



Look! Listen!

A thunderstorm is coming.

What kind of lightning is that?

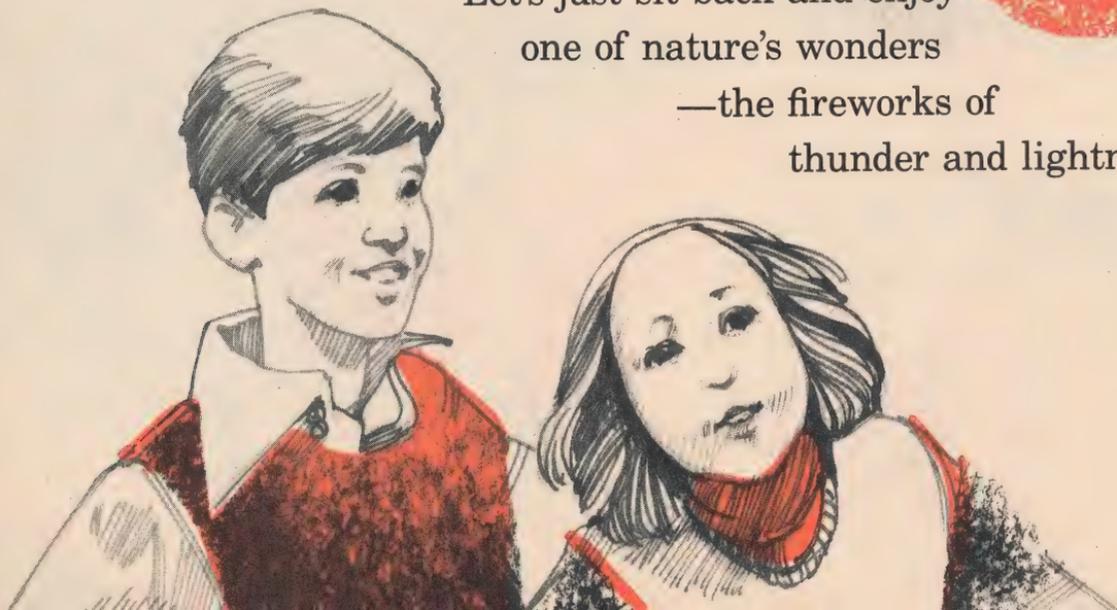
How far away is it?

Let's just sit back and enjoy

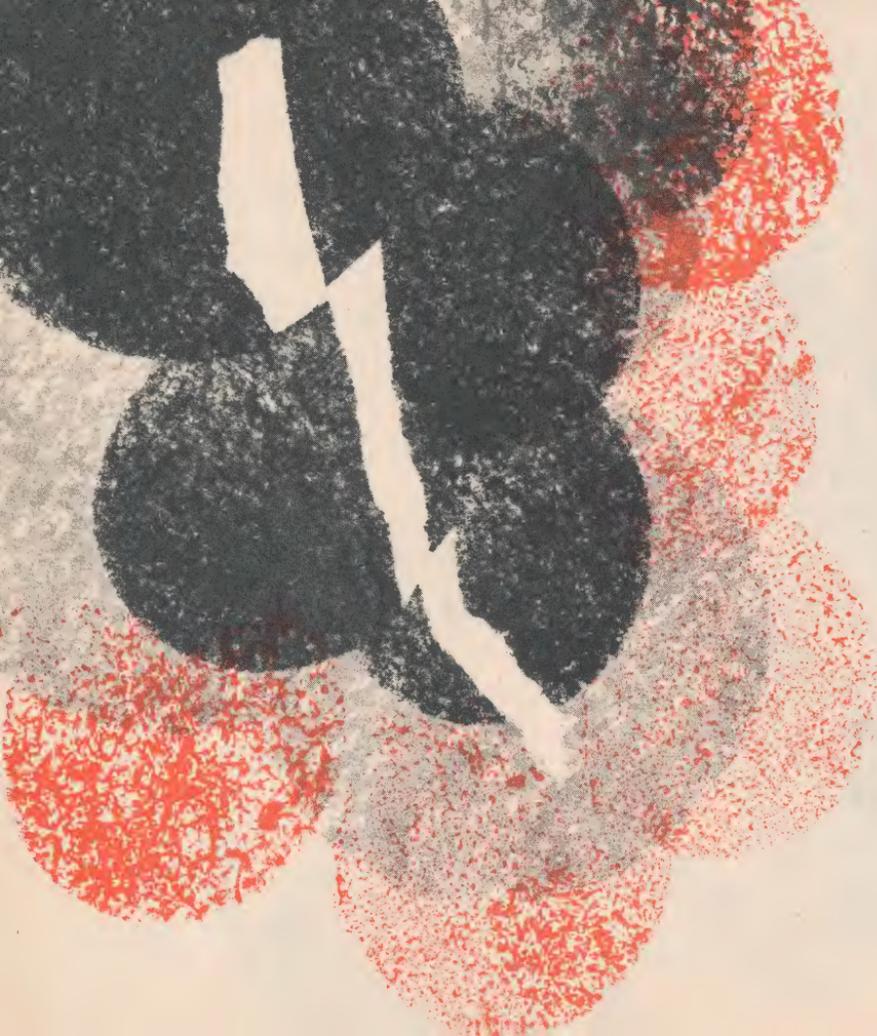
one of nature's wonders

—the fireworks of

thunder and lightning.











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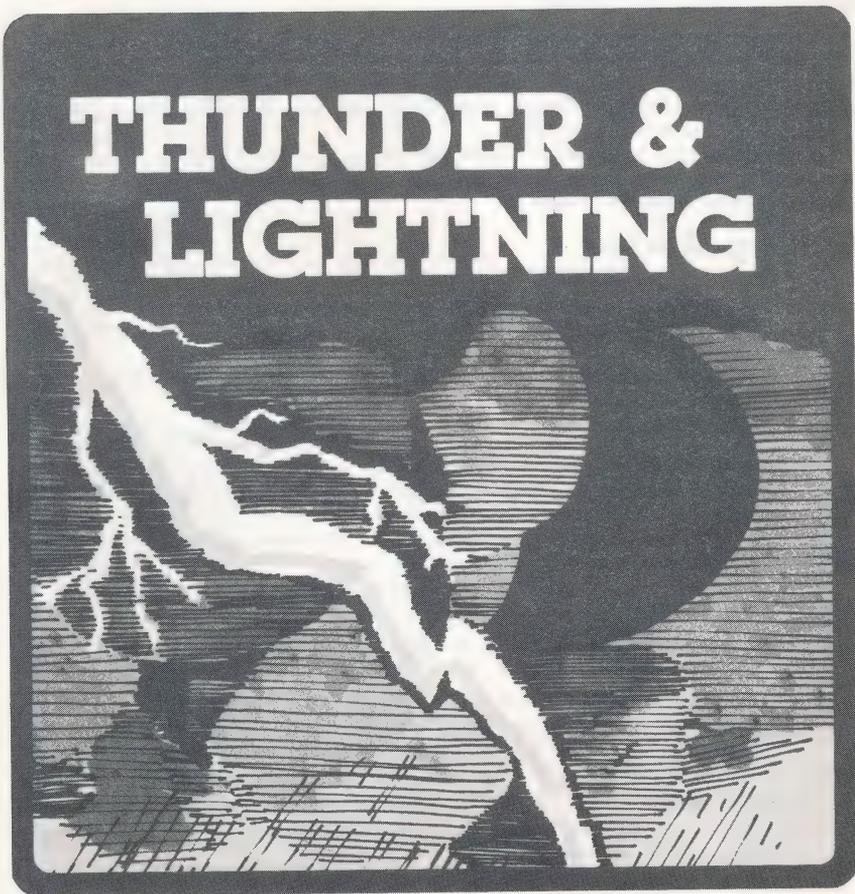
# Troll

MICRO

COURSEWARE

## USER'S GUIDE

### THUNDER & LIGHTNING



Troll Micro-Software

# THUNDER AND LIGHTNING

## USER'S GUIDE

### How to Use This Program

Before using the program disk, the child should first read the book, or listen to the audio cassette, or use the book and cassette as a read-along.

After the child is familiar with the story, the program disk can be used. The four learning games it contains are based on the story, and successful completion of the games requires information found in the story.

### About the Games

The games on the micro-software program disk are fun. They also strengthen important learning skills. The games can help a child read with more understanding. They can enrich the child's vocabulary. What's more, the child can go back to a game again and again—having fun, but also practicing reading and language skills at the same time.

The games may be played in any order. Instructions are provided on the screen when they are needed. **To obtain additional help while a game is in progress, simply press the H key.\***

### Getting Started

Insert the program disk into the disk drive with the label facing up and the oval cut-out facing away from you. Close the door on the disk drive and turn on the monitor and computer. The red light on the disk drive will light up as the program loads.

Note: Some Apple computers require that PR#6 be typed before the program begins loading.

Note: On the Apple IIe, make sure the CAPS LOCK key is down.

When the program has loaded, the Troll logo will appear, followed by the title of the program. Then the game menu will appear. Select the game you want to play, and press the indicated key. That game will automatically load and run.

**During the game, the sound may be turned off or on by pressing the S key.\*** As the sound is turned off or on, a tone will be heard.

When you have finished playing the game, you will be offered the option of playing the same game again, or returning to the game menu.

**Note: To return to the game menu while any game is in progress, press the CONTROL and X keys simultaneously.\***

If the Q key is pressed while the game menu is displayed, the program will end. To restart the program, follow the instructions under "Getting Started."

Remember, the H key calls for help. The S key turns the sound off or on. Control-X returns you to the game menu while a game is in progress.

**\*The H, S, and CONTROL-X keys are active at the following times:**

- A) In Game A, when the question appears, "WHICH WAY WOULD YOU LIKE TO MOVE?"
- B) In Game B, when the instruction appears, " READ THE SENTENCE, THEN PRESS SPACE BAR."
- C) In Game C, when the instruction appears, "PRESS A, B, OR C."
- D) In Game D, when the pointing arrow is on the screen.

# Using The Games

## **BOLT JOLT**

(Reading Comprehension)

Can you move the lightning bolt through the maze? Press U, D, L, or R to move Up, Down, Left, or Right. But watch out! Hidden in the maze are true/false questions based on the story. Before you can go, you must answer correctly when asked if a statement is true or false. The statements are chosen at random by the computer. To get through the maze, at least 8 statements must be answered correctly. The score is shown at the end of the game, including the number of questions asked and the number of correct answers given.

## **WORD CATCHER**

(Using the Right Word)

Can you catch the missing word? Three words are moving along the conveyor belts, but only one will correctly complete the sentence. Read the sentence, then press 1, 2, or 3 to choose the correct word. The faster you do it, the more points you'll win. The more you answer correctly, the faster the conveyor belts move and the more points you win for correct answers. Incorrect answers slow the conveyor belts down and lower the number of points you can win. After twenty sentences, you may play the game again, or return to the game menu.

# **ZAPPER**

## (Word Definitions)

Can you zap the lightning collector? First read the sentence. Then press A, B, or C to choose the best meaning for the underlined word. With a correct answer on the first try, you zap the lightning collector three times and you win 3 points. With a correct answer on the second try, you zap the lightning collector once and you win 1 point. After two wrong answers in a row, you lose 2 points. Sentences are chosen at random by the computer. After ten sentences, you may return to the menu or play Round 2, which consists of ten different sentences. The maximum score after two rounds is 60 points.

# **NIMBLE**

## (Synonyms, Antonyms, Homonyms)

Get ready for fun with words! For each target word that comes up on the screen, the computer will tell you to look for either a synonym, an antonym, or a homonym. Choose from the ten words listed. Just move the pointer to your choice by pressing the space bar, then press RETURN. If your choice is wrong, you get another chance. For each correct answer on the first try, you win 200 points. If it takes two tries to get the correct answer, you win 150 points. If it takes three tries, you win 100 points. After ten target words, you may return to the game menu or play Round 2, with ten different target words. You may also play a third round if you wish. The maximum score after three rounds is 6000 points.



## **System Requirements**

1. Apple IIe, Apple II + , or Apple II (with Applesoft) and at least 48K of RAM.
2. One disk drive.
3. A TV set or video monitor (color is recommended).

## **Program Components**

1. One micro-software program disk.
2. One copy of a paperback *I Can Read* book.
3. One read-along cassette with narration that follows the book word-for-word.
4. One user's guide.

## **Care of Disks**

The micro-software program is recorded on the magnetic coating of the program disk, which is permanently sealed inside a protective cover. Do not touch the surface of the disk that is visible through the oval cut-out in the protective cover. When the disk is not in use, it should be returned to its own envelope and stored in a safe place away from dust, magnetic fields, and temperature and humidity extremes. Do not bend, staple, or write on the disk or its protective cover with ball point pen or pencil.

## **Warranty**

Troll Associates provides a lifetime guarantee on Troll micro-software disks. If this program disk is accidentally damaged or ever fails to load or run, simply return it to us for a free replacement.

Apple II, II+, and IIe are registered trademarks of Apple Computer, Inc.

**Troll Associates**

320 Rt. 17, Mahwah, N.J. 07430

# **TROLL READ-ALONG**

**I Can Read About Thunder & Lightning**

**Duplication  
Prohibited**



**TROLL ASSOCIATES**

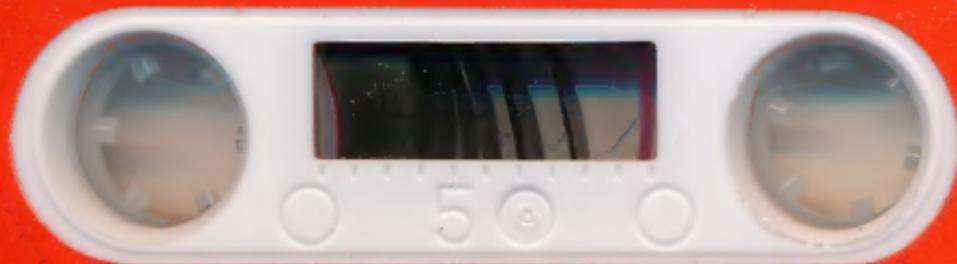
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**TROLL READ-ALONG**

*D. Kehr*

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**THUNDER**  
and  
**LIGHTNING**

*D. Kehr*

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# THUNDER and LIGHTNING

*D. Kehr*

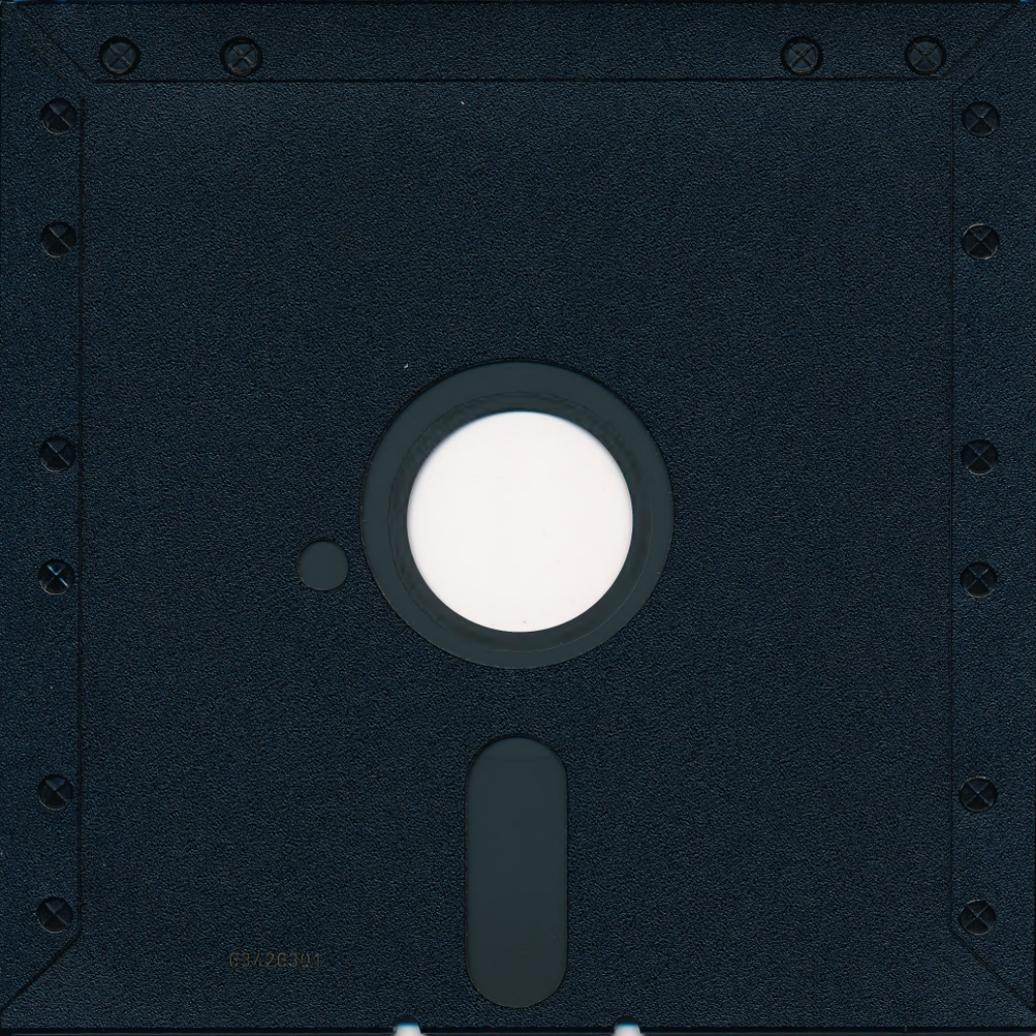
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