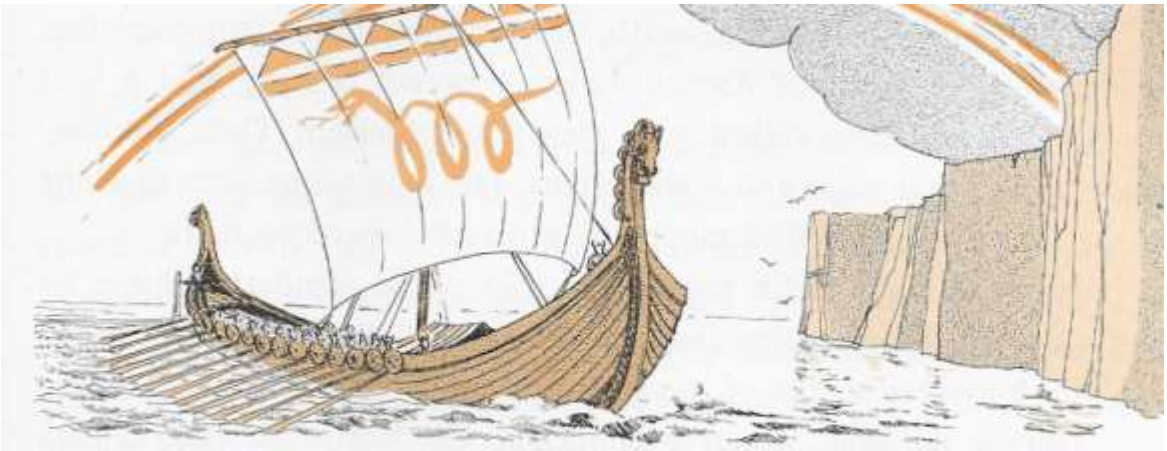


The Norse Gods

Many, many years ago the brave Norsemen sailed the seas in their great ships. They were a fierce, strong people, like the cold North from which they came. No sea was too stormy for them to sail, and their ships traveled farther than any others of that time.

These Norsemen, like the other people of Long Ago, thought that gods and goddesses lived in the sea, in the wind, in the flowers, and in everything else in the world.

The home of the great Norse gods was Asgard, a shining city on the top of a beautiful mountain overlooking the earth. The rainbow was the bridge that led up from earth to this dwelling place of the gods.

In Asgard lived Odin, the ruler of all. No one else in Asgard or on earth was as wise as Odin. His wife, Frigga, was the beautiful goddess of the sky.

Thor was another of the "Asas," as the great Norse gods were called. It was he who sent the rain clouds and with his hammer made the thunder roar. Golden-haired Sif, his wife, brought soft rain and sunshine to feed the plants and flowers.

There were many other gods in Asgard, and among them was Loki, the mischief-maker. He was really only a half-god. He belonged to the race of giants, whom all men feared and all the gods hated. Some-

how or other, Loki had come to live in Asgard, and he was always making trouble there.

The gods often came to earth, but it almost never happened that a man saw the walls of Asgard. Once, however, a king paid a visit to the gods and even talked with great Odin himself. Then suddenly there was a great noise and a great light. The king found himself alone at the foot of the beautiful mountain and saw Asgard no more.

He went home to his people and told of the wonderful things he had seen and heard in the land of Odin. That is how the Norsemen came to know the stories of the gods.

During the cold winter evenings in the Northland, the fathers and mothers and boys and girls used to sit around the great wood fires listening to these stories of Asgard. The wind roaring outside sounded like the storm giant shaking his wings or like the rumbling of Thor's chariot as he dashed over the top of the pine trees.

These Norse gods have never been forgotten. Today we are reminded of them by the names of the days of the week. Thursday is Thor's day, and Friday is Frigga's day.

The great Odin was called Woden too, and his day is Wednesday. If the Norse people wished to be sure of a good crop, they sowed the seed on Woden's day, for they were sure that he watched over the planting and harvesting of the earth-dwellers.

WORDS TO WATCH

Norsemen	Odin-Woden	Asas	Loki
Asgard	Frigga	Sif	chariot

QUESTIONS

1. Where did the Norsemen think their gods and goddesses lived?
2. Which god was the ruler of all the Norse gods?
3. How did the Norsemen come to know about the gods?
4. Where do we now find the names of the Norse gods?

How Thor Got His Hammer

Norse Myth

Thor had a very beautiful wife, named Sif, whom he loved dearly. She had long wavy hair, which shone like pure gold. Thor was very proud of his wife's golden hair, and the other gods knew it.

Loki was a mischief-making god who sometimes came to Thor's castle. He loved nothing better than to play tricks on those around him, and very often got himself and others into trouble. His pranks were not always kind, but often quite cruel, and when he got someone else into deep trouble, he laughed heartily at his plight.

Once, when Thor had gone on one of his long journeys to visit the mountain giants, Loki came to Thor's castle in the sky. As he stepped on the porch, he saw Sif lying asleep. Her beautiful hair was falling over her shoulders like a shower of gold.

"Now for some fun," said Loki. "I will cut off Sif's hair while she sleeps, and then see how angry Thor will be." So he went very cautiously to Sif's side, cut off the lovely golden locks, and ran away with them.

When poor Sif awoke and found her beautiful hair gone, she hid herself in the palace, for she feared Thor's anger.

After a while Thor returned, but no Sif was there to greet him. The great god, who was not afraid of anything, now grew faint with fear that ill had befallen his beloved Sif.

He ran from room to room and finally found his wife, weeping bitterly over the loss of her beautiful hair. When Thor saw Sif's shorn head, he became so angry that lightnings flashed out of his eyes and the whole palace shook from his furious roars. Even the fun-loving Loki was frightened and tried to get out of Thor's way. But he could not long hide from Thor, who was searching everywhere for him.

"No one but Loki would do such a thing," he shouted. "Wait till I find the rascal—I'll break every bone in his body!"

He found Loki, shook him hard, and would have killed him on the spot, had not Loki confessed and begged for his life.

"I'll have the dwarfs make a crown of golden hair for Sif, more beautiful than the one I took," he promised.

Thor let him go under the condition that he bring back golden hair just as beautiful as Sif's.

So Loki went to see the dwarfs who lived deep down in the ground and who were skilled workers in gold and brass. These tiny little men were always doing good and wonderful things for others.

"Can you make me a crown of golden thread that will grow like real hair?" Loki asked them. "Yes," answered the dwarfs simply, "we can."

All night long these busy little men worked, and when the light of day came, the crown was finished. Loki carried it to Asgard and gave it to Thor, who set it on Sif's head. "It is very wonderful," said all the gods.

"Nobody can work in metal like the sons of Ivald," boasted Loki. "All other dwarfs are good-for-nothings compared to them."

Brok, another dwarf, who was standing close by, happened to hear Loki's boasting. It made him angry, because his brother Sindre was thought to be the best workman among the dwarfs.

"My brother Sindre will make something for Thor just as wonderful or better than the crown of golden hair," he cried.

"If he can do that," mocked Loki, "he shall have my head for his trouble."

Brok went off to the underworld and told his brother what had been said. Sindre went straight to work. His smithy was a great underground cavern, dark and gloomy, lightened only by the glow of the furnace fire. Brok started blowing the bellows and set the fire blazing.

To prevent the dwarf from doing his best work, Loki changed himself into a gadfly, flew into the cavern, and stung and tormented little Brok. But Brok was a very faithful dwarf and kept steadily at work.

At last Sindre took the most wonderful hammer out of the fire and handed it to Brok, who hurried to bring it to Thor.

"This hammer," he said, when he placed it in Thor's strong hands, "will never fail to destroy whatever it strikes, and no matter how far it is thrown, it will always return to your hand."

Thor swung the hammer around his head, and lightning flashed through Asgard, thunder rolled, and dark clouds gathered in the sky.

The gods passed the hammer from hand to hand and said that it would be their greatest protection against their enemies, the Frost Giants. They therefore declared that Brok had won the wager.

Brok's little face lightened up like a furnace fire, so delighted was he to have beaten the boastful Loki.

"I will take Loki's head," he said, hoping that some of the gods might help him.

"I will give you anything else you want," growled Loki, who was angry that he had been beaten.

"I will have your head, or I will have nothing," answered Brok.

"All right," cried Loki, who was cunning as well as wicked, "you may cut off my head, but you have no right to touch my neck."

That was true, but of course the head could not be taken off without touching the neck, so Brok had to give it up.

WORDS TO WATCH

pranks	brass	smithy	gadfly
plight	mocked	bellows	wager

QUESTIONS

1. How did Thor get his hammer?
2. Why did Thor become angry at Loki?
3. Who was Loki? What was he like?
4. Why did Brok win the wager with Loki?
5. Why did Brok have to give up his plan to kill Loki?

An Old Tale

Told by Mochta-Wontz-tz (Starving Elk)

Once upon a time the people were encamped in a circle, and in the center of the camp they held a game. But the people were hungry; they had nothing to eat.

Now there were two medicine-men, holy men, men of mystery, who had dressed themselves in great beauty to go to the game. The first holy man wore a buffalo robe; the second wore one also. The two medicine-men looked at each other. They were dressed exactly alike, their faces were painted alike, and their feathers were arranged in the same way.

Said the first holy man, "Have you something against me that you imitate my dress? Are you mocking me?"

And the second answered, "It seems that you are mocking me. Where did you learn to dress like this?"

Then the first said, "In a dream I went to the clear spring that is near the camp, and there in the spring I learned this dress."

And the second said, "I too went to the spring in a dream, and there I learned this dress."

Then they argued, and at last they said, "Go we together to the spring by open day, and let us prove which has the better right to wear this dress."

So they set out and all the people followed.

When they came to the spring, each one said defiantly to the other, "Dare you go in?"

So they stepped in together and sank to the very bottom. There at the bottom they saw an old woman who lived in the spring, and she asked of them, "What want you here?"

Now they both were hungry, and they answered, "Our people have nothing to eat."

So the woman gave to each a bowl of food to take back with him; in the one bowl she put corn, and in the other pemmican.

So the two holy men went back to their people and gave them the food, and they all ate of it, the whole tribe, even the little children. Yet, however much they ate of it, the two bowls never were empty.

This is an old tale, often told, and many a Cheyenne knows how thus there first came to his people the food on which they live —meat and corn.

WORDS TO WATCH

encamped	mystery	pemmican
medicine-men	defiantly	Cheyenne

QUESTIONS

1. How did the Cheyenne Indians come to know their main foods, meat and corn?
2. What was remarkable about the bowls of food that the old woman of the spring gave to the two holy men?
3. Why were the two medicine-men fighting?
4. Where did the two medicine-men say they learned to dress in a buffalo robe?

Hiawatha's Childhood

Henry Wadsworth Longfellow

By the shores of Gitche Gumee,
By the shining Big-Sea-Water,
Stood the wigwam of Nokomis,
Daughter of the Moon, Nokomis.
Dark behind it rose the forest,
Rose the black and gloomy pine-trees,
Rose the firs with cones upon them;
Bright before it beat the water,
Beat the clear and sunny water,
Beat the shining Big-Sea-Water.

There the wrinkled old Nokomis
Nursed the little Hiawatha,
Rocked him in his linden cradle,
Bedded soft in moss and rushes,
Safely bound with reindeer sinews;
Stilled his fretful wail by saying,
"Hush! the Naked Bear will hear thee!"

Lulled him into slumber singing,
"Ewa-yea! my little owlet!
Who is this that lights the wigwam?
With his great eyes lights the wigwam?
Ewa-yea! my little owlet!"

Warriors with their plumes and war-clubs,
Flaring far away to northward
In the frosty nights of Winter;
Showed the broad white road in heaven,
Pathway of the ghosts, the shadows,
Running straight across the heavens,
Crowded with the ghosts, the shadows.

At the door on summer evenings
Sat the little Hiawatha;
Heard the whispering of the pine-trees,
Heard the lapping of the waters,
Sounds of music, words of wonder;
"Minne-wawa!" said the pine-trees.
"Mudway-aushka!" said the water.

Saw the fire-fly, Wah-wah-taysee,
Flitting through the dusk of evening,
With the twinkle of its candle
Lighting up the brakes and bushes,
And he sang the song of children,
Sang the song Nokomis taught him:

"Wah-wah-taysee, little fire-fly,
Little, flitting, white-fire insect,
Little, dancing, white-fire creature,
Light me with your little candle,
Ere upon my bed I lay me,
Ere in sleep I close my eyelids!"

Saw the rainbow in the heaven,
In the eastern sky, the rainbow,
Whispered, "What is that, Nokomis?"
And the good Nokomis answered,
"'Tis the heaven of flowers you see there:
All the wild-flowers of the forest,
All the lilies of the prairie,
When on earth they fade and perish,
Blossom in that heaven above us."

When he heard the owls at midnight,
Hooting, laughing in the forest,
"What is that?" he cried in terror,
"What is that," he said, "Nokomis?"
And the good Nokomis answered:
"That is but the owl and owlet,
Talking in their native language,
Talking, scolding at each other."

Then the little Hiawatha
Learned of every bird its language,
Learned their names and all their secrets,
How they built their nests in Summer,
Where they hid themselves in Winter,
Talked with them whene'er he met them,
Called them "Hiawatha's Chickens."

Of all beasts he learned the language,
Learned their names and all their secrets,
How the beavers built their lodges,
Where the squirrels hid their acorns,
How the reindeer ran so swiftly,
Why the rabbit was so timid,
Talked with them whene'er he met them,
Called them "Hiawatha's Brothers."

From "The Song of Hiawatha."

Longfellow's First Poem in Print

One evening Henry Wadsworth Longfellow stole out of his father's house with a great secret in his heart and something precious in his pocket.

Henry was twelve years old, and the precious thing in his pocket was a copy of verses, a poem he had written secretly. He went to drop it into the box of the *Portland Gazette,* the town's newspaper.

When nobody was near to observe him, Henry stood on his toes and, reaching up, dropped the poem into the editor's box.

The *Gazette,* which appeared twice a week, printed half a page of poems called the "Poet's Corner."

What if the paper would publish his poem!

His heart was beating fast when he hurried home.

The next evening he walked by the office again, and from the opposite side of the street he looked up at the printers at work.

It was summertime and the windows were open. Seeing the printers in their shirt sleeves, each with a shaded lamp over his case, he said to himself, "Maybe they are printing my poem."

When the family newspaper came, Henry carried it off to a secret corner and opened it with hope and fear. Sure enough, heading the "Poet's Corner" and looking strange, but oh, so beautiful in print, there were his precious verses!

"The Battle of Lovell's Pond" signed "Henry." Every word just as he had written it.

Many years afterwards, when Henry Wadsworth Longfellow had become one of America's most famous writers, he still remembered his first poem in print. Honor and fame were his in full measure. "But," said the great poet with a smile, "I don't think any other literary success in my life has made me quite so happy."

QUESTIONS

1. Find all of Longfellow's poems in this book.
2. Which one do you like best and why?
3. Try to find some other poems or stories written by Longfellow.

A Blackfoot Story

Indian Myth

Here is a story the Indians tell. It is one of the tales with which they amuse themselves in long evenings. It may be true. At least, the Indians tell it for true.

An Indian chief of the tribe called Blackfoot, or Blackfeet, went over the Rocky Mountains with a war party. He killed some of the enemies of his tribe and then started back. For fear their enemies would follow their tracks, the party did not take the usual path. They went up over the wildest part of the mountain. But when it came to going down on the other side, the Indians had a hard time.

They had to clamber over great rocks and down the side of cliffs. Drifts of snow blocked their way in places. At last they had to stop.

They stood on the edge of a cliff. Below this cliff was a ridge or shelf of rock. By tying themselves together, and so helping one another down, they got to this shelf. Below they found still another cliff. It was harder to get down to this.

But when they had got down as far as this ledge, they were in a worse plight than ever. They stood on the brink of a great cliff. The rocks were too steep for them to get down. It was hundreds of feet to the bottom.

They tried to get back up the mountain, but that they could not do. Then they sat down and looked over the brink of the cliff. There was no chance for them to get down alive. They must stay there and starve.

The Indians filled their pipes with kinnikinnick, or willow bark, and smoked. Then they knocked the ashes out of their pipes and lay down to sleep.

But the chief did not sleep. He could not think of any way of getting out of the trouble. When morning came, they all went and

looked over the cliff once more. Then they smoked again. After sitting silent for some time, the chief laid down his pipe quietly, got to his feet, and went to painting his face as if he were getting ready for a feast. He arranged his dress with the greatest care. Then he made a little speech.

"It is of no use to stay here and die," he said. "The Great Spirit is not willing that we should get away. Let us die bravely."

He added other remarks of the same kind. Then he sang his death song. When this was finished, he gave a shout, and leaped over the cliff.

When the chief had gone, the others sat down and smoked again in silence. After a long time, a weather-beaten old Indian got up and walked to the edge of the cliff.

"See," he said, "there is the soul of our chief, waiting for us to go with him to the land of spirits."

The others looked over, and saw the form of a man far below, waving the bough of a tree.

The old warrior now threw off his blanket and sang his death song. Then he leaped off. The others again looked over, and this time they saw two forms beckoning to them from below.

One after another the Indians jumped, until there were left but two young men who were little more than boys. These two boys were nephews of the chief. They had never been in a war party.

The elder of the two showed his young brother the ghosts of the whole party standing below. He told his brother he must jump off, but the frightened boy begged to be allowed to stay and die on the bare rock.

The elder seized him and, after a struggle, pushed him over. Then he quietly gathered up all the blankets and guns and threw them

off. He thought the souls of his friends would need these things in their journey to the land of spirits.

When this was done, the young man sang his own death song and jumped off. Falling swiftly as an arrow, feet downward, he struck a great snow drift at the bottom. It received him like an immense feather bed. He sank in so far that he had hard work to get out. When he had succeeded, he found all of his party, not spirits, as he had expected, but living men, safe and sound. The snow had saved them from injury.

WORDS TO WATCH

Blackfoot	brink	beckoning
clamber	leaped	seized
plight	bough	injury

QUESTIONS

1. Why is the ending of this story a surprise?
2. What did the Indians on the cliff think they saw waving to them from below?
3. What did the last Indian throw off the cliff to help the souls of his friends in their journey to the land of spirits?

How No-Moon Gave Service

Indian Myth

No-Moon got her name because she was ugly. Her father said, "The moon is as beautiful as a woman's face, but this child is no more beautiful than the moon when it is not." So they called her No-Moon.

Her father mourned when she was little, and said, "Always will this child be upon our hands, for no man will want her for his wife." No-Moon mourned, too, and when the other maidens beaded and wove for their bridal wigwams, she said, "If I am not to have another lodge to work for, why should I learn to make this one beautiful?" And their home was bare and without a decoration. And No-Moon stayed much in their lodge alone.

Sometimes when she met passers in the village street, they looked away to something more beautiful. This hardened No-Moon's heart and brought a frown to her face. She grew to turn away from the passers-by, for they hated her and she hated them.

One day, when she went to the spring, she stumbled beside the path, and in rising, brushed some leaves from the flowers that hid there. And a fragrance rose to her face. Then No-Moon felt strange in her heart, and she said, "Little flowers, you are not beautiful like the daisy and the rose, but you are sweet. You are hidden where no one knows your sweetness, and I will plant you beside the spring, where all shall see and admire you when they come to draw water."

When she returned to the lodge, her father coughed as he sat by his door, for the dust blew up in his face. Then No-Moon brought some of her flowers and cool grass and green vines, and planted them by the door, that there might be no more dust, and that the lodge might be beautiful without. And No-Moon looked within to see if the inside of the lodge might be more beautiful too. And she felt strange in her heart again, for something was hard where her heart was broken. And the frown was gone from her face.

Once at the spring she found an old, old woman and her lame daughter who were trying to fill their jar with water, and she carried it for them. Then once more she felt strange within, for something fell away from the heart of No-Moon, but No-Moon herself was smiling. After that she watched for the woman who was old and the daughter who was lame and carried the water for them.

And No-Moon grew to love the flowers she had found hidden under the leaves, for often their fragrance seemed near her. And many moons rolled over the camp, and after a while she was grown to be a woman. Then there was a time when the son of a neighboring chief came to the camp in search of a wife. "She must be beautiful," the old chief said when he sent his son. The maidens tanned fine doe skin, and beaded and wove to complete their dowries before the young chief's coming. No-Moon helped the maidens, then went to the chief's wigwam where the young chief was to lodge, and left there pieces of her handiwork to make the wigwam beautiful.

When the maidens stood in line for the young chief to make his choice, he looked at the first and saw that she was beautiful, but her face was cross. So he looked at the next, but her face was cruel. The face of the third was not cruel, but neither was there any patience there. And the young chief looked all along the line, and then he said, "I will not choose today."

When the maidens had gone, he said, "Oh, chief, who made your lodge so beautiful?" And the chief said. "No-Moon, but she was not here today, for she is not beautiful."

When they led him through the village, the young chief said, "Why is your camp so green with grass and vines while other camps are bare?" And they said, "Because No-Moon planted them to make

the camp more beautiful." The young chief said, "I will take this path for I am weary from travel, and the path is smooth. What makes it so straight and smooth?" They said, "The feet of No-Moon made it smooth bringing water for her mother and for the old and sick."

When they reached the spring, it was sweet with the flowers that No-Moon had planted there, and beside the spring stood No-Moon. The young chief lifted his eyes and saw her, and he said, "Oh, she is beautiful." She had been growing beautiful for a long time.

The young chief said, "Her name is no longer No-Moon, for in her face are patience and kindness and all the things that make a woman's face as beautiful as the full moon."

WORDS TO WATCH

No-Moon
mourned
bridal
wigwams
neighboring
tanned
doe skin
dowries

QUESTIONS

1. What made No-Moon beautiful in the eyes of the young chief?
2. What do *you* think makes a girl or boy, man or woman beautiful?
3. What was the meaning of the name No-Moon?
4. How did No-Moon give service to the people in her tribe?
5. What was the first thing to soften the heart of No-Moon?

PART EIGHT

America Today

Do skyscrapers ever grow tired
Of holding themselves up high?
Do they ever shiver on frosty nights
With their tops against the sky?

Do they feel lonely sometimes,
Because they have grown so tall?
Do they ever wish they could lie right down
And never get up at all?

Rachel Field

America the Beautiful

Katharine Lee Bates

O beautiful for spacious skies,
For amber waves of grain,
For purple mountain majesties
Above the fruited plain!
America! America!
God shed his grace on thee
And crown thy good with brotherhood
From sea to shining sea!

O beautiful for pilgrim feet,
Whose stern, impassioned stress
A thoroughfare for freedom beat
Across the wilderness!
America! America!
God mend thine every flaw,
Confirm thy soul in self-control,
Thy liberty in law!

O beautiful for heroes proved
In liberating strife,
Who more than self their country loved,
And mercy more than life!
America! America!
May God thy gold refine,
Till all success be nobleness,
And every gain divine!

O beautiful for patriot dream
That sees beyond the years
Thine alabaster cities gleam
Immaculate of tears!
America! America!
God shed his grace on thee
And crown thy good with brotherhood
From sea to shining sea!

From Smoke Signals to Television

If you took a monkey to school with you, how much do you think it could learn? It would not only have a hard time understanding the teacher, but it would also have trouble answering questions or writing stories. Monkeys and all other animals do not have the ability to *communicate* ideas to each other as you can. They will never understand how to tell time, or that the world is round, or that there are millions of stars in the heavens.

Sometimes people have trouble communicating with each other too, even though they speak the same language. Sometimes the trouble lies with the speaker because he has not thought out carefully what he is saying, and sometimes the trouble lies with the listener because his thoughts are somewhere else.

Communication among people is one of the greatest of miracles. How would you like it if there were no books, no newspapers, no telephones, no radios, and no television sets? Just think how lonely you would be if you could not even *talk* to your family and friends!

Today we take all these things for granted; yet not so long ago people could speak only as far as their voices could carry, and letters could travel only as a horse could gallop.

If we go back still further in time, before there were any written records, people did not even *speak* to each other. They undoubtedly grunted and groaned, made funny faces, and waved their hands when they wanted to express themselves, but there was no language.

In order to appreciate the miracle of communication, try telling a story to someone without using any words.

Long after men had begun to speak to each other in a language, they started to communicate over long distances. The most important messages were warnings of danger. Warning signals were usually made with drums, fires, or smoke signals. When the colonists came to America, they found that the Indians telegraphed to one another with smoke signals and fires.

An Indian who wished to send a message to a party of his friends a long way off, built a fire. When the fire blazed high into the air, he threw an armful of green grass on it. This caused the fire to send up a stream of white smoke hundreds of feet high, which could be seen fifty miles away in clear weather. Among the Apaches, one column of smoke was to call attention, two columns meant "all is well, and we are going to stay in camp," and three columns or more were a sign of danger and asked for help.

Sometimes Indians sent longer messages. After building a fire and putting green grass on it, the Indian spread his blanket over it. He held down the edges of the blanket to hold the smoke in. After a few moments he took his blanket off, and when he did this, a great puff of smoke, like a balloon, shot up into the air. One puff of smoke chased another upward. By the number of these puffs and the length of spaces between them, he made his message understood by his friends many miles away.

When colonies in America were first settled by men from Europe, there were wars with the Indians. Whenever the Indians attacked a settlement, the settler who saw them first took his gun and fired it three times. Bang, bang, bang! went the gun. The settlers who lived near the man who fired the gun heard the sound. They knew that three shots following one another quickly meant that the Indians had come. Every settler who heard the three shots took his gun and fired three times.

Then, as soon as he had fired, he went in the direction of the first shots. Every man who had heard three shots, fired three more, and went toward the shots he had heard. Farther and farther away the settlers heard the news and sent it along by firing so that others might hear. Neighbors came from every direction to help chase away Indians.

This was a kind of telegraph. But there were no wires; there was no electricity, only one flintlock musket waking up another flintlock musket, till a hundred guns had been fired, and a hundred men were marching to the battle.

One of the greatest advances in communication was made when Samuel Morse invented the telegraph.

Morse wired a switch to a battery and to an electromagnet. He showed that if he opened and closed the switch, the electromagnet could make a clicking sound each time the switch opened or closed. The wires could be made almost any length so that these little clicks could be heard hundreds of miles away. The signal could travel the speed of light, which is 186,000 miles per second.

Morse then worked out a code of dots and dashes to represent letters. If someone opened and closed the switch at one end of the wire, dots and dashes could be heard hundreds of miles away. Translated into letters, the message could be understood almost instantly. At last men could communicate with each other over long distances. In 1844 a telegraph line was built from Washington to Baltimore and the world all of a sudden seemed to shrink. From that time to today, people living far away seem to have become our neighbors because of the development of the telegraph, the telephone, the radio, and in the last few years, television.

Since communication is now so highly developed, newspapers, magazines, radios, and television gather mountains of information every day. There is simply not enough time to find out everything that is happening in the world.

Fortunately the most important information and ideas are written down in books, and books are carefully organized in libraries, so that you can find what you want.

When you call your friend tonight, stop to think how fortunate you are that you do not have to give him your message in smoke signals.

WORDS TO WATCH

communicate	telegraph	Samuel Morse	code
Apaches	flintlock musket	electromagnet	equivalent

QUESTIONS

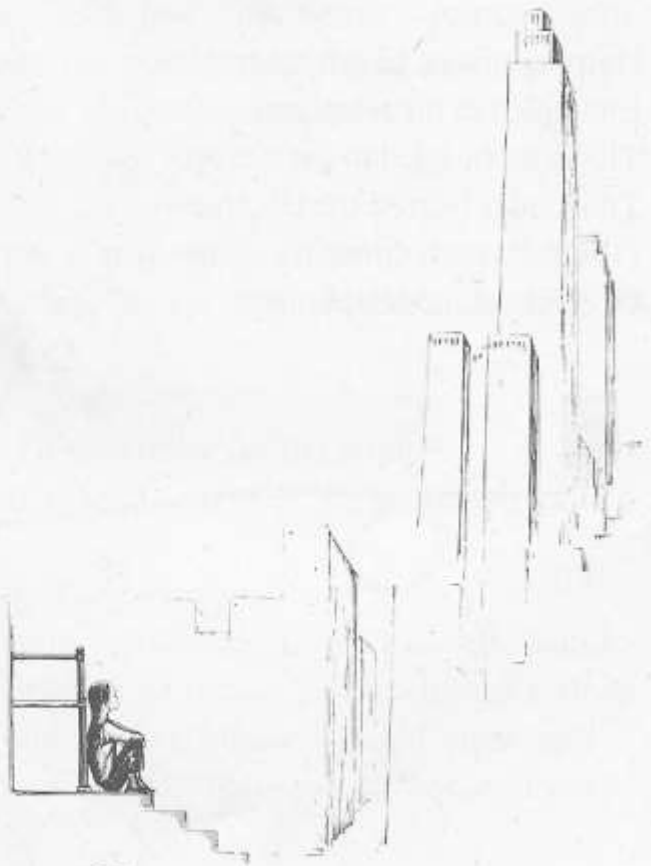
1. What is the meaning of the word *communicate?*
2. What would we do today, if all our modern instruments of communication were taken away suddenly?
3. How did the Indians send messages? The early settlers?
4. Why did the world "seem to shrink" after the invention of the telegraph?
5. What are some dangers or disadvantages of our highly developed communication?

City

Langston Hughes

In the morning the city
Spreads its wings
Making a song
In stone that sings.

In the evening the city
Goes to bed
Hanging lights
About its head.

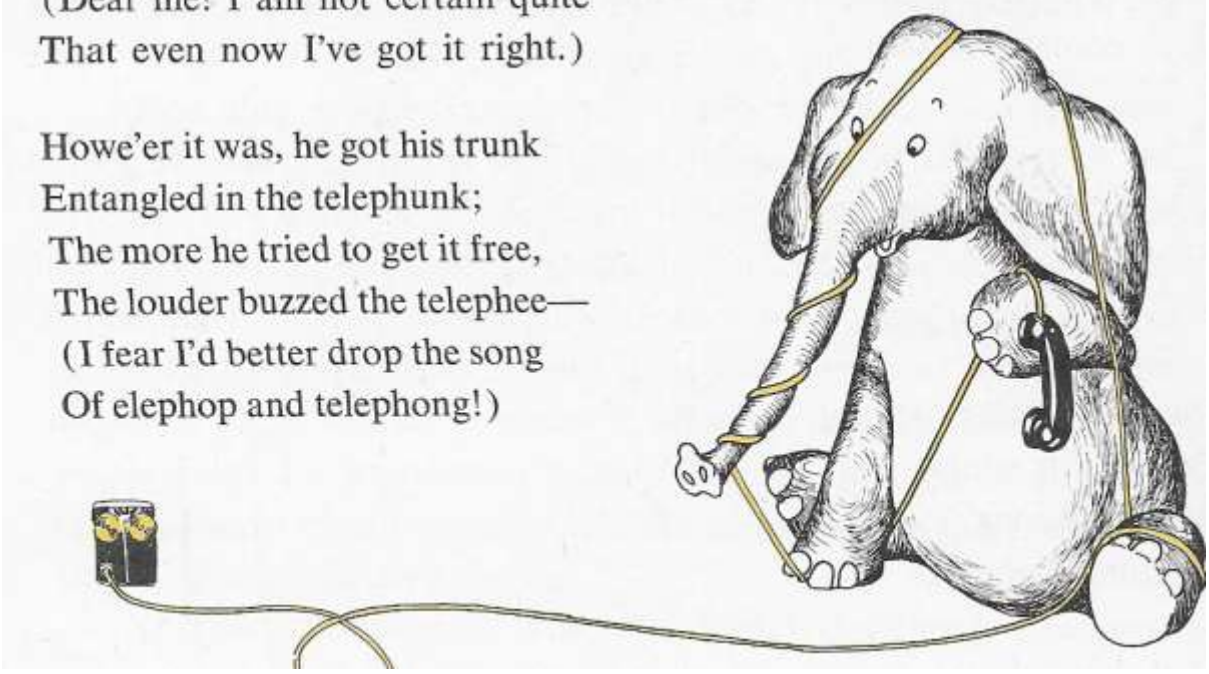


Eletelephony

Laura E. Richards

Once there was an elephant,
Who tried to use the telephant—
No! no! I mean an elephone
Who tried to use the telephone—
(Dear me! I am not certain quite
That even now I've got it right.)

Howe'er it was, he got his trunk
Entangled in the telephunk;
The more he tried to get it free,
The louder buzzed the telephee—
(I fear I'd better drop the song
Of elephop and telephong!)



The Cricket in Times Square

George Selden

Mama and Papa Bellini are running a newsstand in the New York Times Square subway station. Their son Mario helps them on weekends. One Saturday Mario hears a mysterious chirp and finds Chester the Cricket in a pile of dirt. He talks Mama and Papa into letting him keep Chester as a pet.

Tucker Mouse had been watching the Bellinis and listening to what they said. Next to scrounging, eavesdropping on human beings was what he enjoyed most. That was one of the reasons he lived in the Times Square subway station. As soon as the family disappeared, he darted out across the floor and scooted up to the newsstand. At one side the boards had separated, and there was a wide space he could jump through. He'd been in a few times before—just exploring. For a moment he stood under the three-legged stool, letting his eyes get used to the darkness. Then he jumped up on it.

"Psst!" he whispered. "Hey you up there—are you awake?"

There was no answer.

"Psst! Psst! Hey!" Tucker whispered again, louder this time.

From the shelf above came a scuffling, like little feet feeling their way to the edge.

"Who is that going 'psst'?" said a voice.

"It's me," said Tucker. "Down here on the stool."

A black head, with two shiny black eyes, peered down at him. "Who are you?"

"A mouse," said Tucker. "Who are *you?*"

"I'm Chester Cricket," said the cricket. He had a high, musical voice. Everything he said seemed to be spoken to an unheard melody.

"My name's Tucker," said Tucker Mouse. "Can I come up?"

"I guess so," said Chester Cricket. "This isn't my house anyway."


KLEENEX

Tucker jumped up beside the cricket and looked him all over. "A cricket," he said admiringly. "So you're a cricket. I never saw one before."

"I've seen mice before," the cricket said. "I knew quite a few back in Connecticut."

"Is that where you're from?" asked Tucker.

"Yes," said Chester. "I guess I'll never see it again," he added wistfully.

"How did you get to New York?" asked Tucker Mouse.

"It's a long story," sighed the cricket.

"Tell me," said Tucker, settling back on his haunches. He loved to hear stories. It was almost as much fun as eavesdropping—if the story was true.

"Well, it must have been two—no, three days ago," Chester Cricket began. "I was sitting on top of my stump, just enjoying the weather and thinking how nice it was that summer had started. I live inside an old tree stump, next to a willow tree, and I often go up to the roof to look around. And I'd been practicing jumping that day too. On the other side of the stump from the willow tree there's a brook that runs past, and I'd been jumping back and forth across it to get my legs in condition for the summer. I do a lot of jumping, you know."

"Me too," said Tucker Mouse. "Especially around the rush hour."

"And I had just finished jumping when I smelled something," Chester went on, "liverwurst, which I love."

"You like liverwurst?" Tucker broke in. "Wait! Wait! Just wait!"

In one leap, he sprang down all the way from the shelf to the floor and dashed over to his drain pipe. Chester shook his head as he watched him go. He thought Tucker was a very excitable person —even for a mouse.

Inside the drainpipe, Tucker's nest was a jumble of papers, scraps of cloth, buttons, lost jewels, small change, and everything else that can be picked up in a subway station. Tucker tossed things left and right in a wild search. Neatness was not one of the things he aimed

at in life. At last he discovered what he was looking for: a big piece of liverwurst he had found earlier that evening. It was meant to be for breakfast tomorrow, but he decided that meeting his first cricket was a special occasion. Holding the liverwurst between his teeth, he whisked back to the newsstand.

"Look!" he said proudly, dropping the meat in front of Chester Cricket. "Liverwurst! You continue the story—we'll enjoy a snack at the same time."

"That's very nice of you," said Chester. He was touched that a mouse he had known only a few minutes would share his food with him. "I had a little chocolate before, but besides that, nothing for three days."

"Eat! Eat!" said Tucker. He bit the liverwurst into two pieces and gave Chester the bigger one. "So you smelled the liverwurst—then what happened?"

"I hopped down from the stump and went off toward the smell," said Chester.

"Very logical," said Tucker Mouse, munching with his cheeks full. "Exactly what I would have done."

"It was coming from a picnic basket," said Chester. "A couple of tuffets away from my stump the meadow begins, and there was a whole bunch of people having a picnic. They had hard-boiled eggs, and cold roast chicken, and roast beef, and a whole lot of other things besides the liverwurst sandwiches, which I smelled."

Tucker Mouse moaned with pleasure at the thought of all that food.

"They were having such a good time laughing and singing songs that they didn't notice me when I jumped into the picnic basket," continued Chester. "I was sure they wouldn't mind if I had just a taste."

"Naturally not," said Tucker Mouse sympathetically "Why mind? Plenty for all. Who could blame you?"

"Now I have to admit," Chester went on, "I had more than a taste. As a matter of fact, I ate so much that I couldn't keep my eyes open—what with being tired from the jumping and everything. And

I fell asleep right there in the picnic basket. The first thing I knew, somebody had put a bag on top of me that had the last of the roast beef sandwiches in it. I couldn't move!"

"Imagine!" Tucker exclaimed. "Trapped under roast beef sandwiches! Well, there are worse fates."

"At first I wasn't too frightened," said Chester. "After all, I thought, they probably come from New Canaan or some other nearby town. They'll have to unpack the basket sooner or later. Little did I know!" He shook his head and sighed. "I could feel the basket being carried into a car and riding somewhere and then being lifted down. That must have been the railroad station. Then I went up again and there was a rattling and roaring sound, the way a train makes. By this time I was pretty scared. I knew every minute was taking me further away from my stump, but there wasn't anything I could do. I was getting awfully cramped too, under those roast beef sandwiches."

"Didn't you try to eat your way out?" asked Tucker.

"I didn't have any room," said Chester. "But every now and then the train would give a lurch and I managed to free myself a little. We traveled on and on, and then the train stopped. I didn't have any idea where we were, but as soon as the basket was carried off, I could tell from the noise it must be New York."

"You never were here before?" Tucker asked.

"Goodness no!" said Chester. "But I've heard about it. There was a swallow I used to know who told about flying over New York every spring and fall on her way to the North and back. But what would I be doing here?" He shifted uneasily from one set of legs to another. "I'm a country cricket."

"Don't worry," said Tucker Mouse. "I'll feed you liverwurst. You'll be all right. Go on with the story."

"It's almost over," said Chester. "The people got off one train and walked a ways and got on another—even noisier than the first."

"Must have been the subway," said Tucker.

"I guess so," Chester Cricket said. "You can imagine how scared I was. I didn't know *where* I was going! For all I knew they could

have been heading for Texas, although I don't guess many people from Texas come all the way to Connecticut for a picnic."

"It could happen," said Tucker, nodding his head.

"Anyway I worked furiously to get loose. And finally I made it. When they got off the second train, I took a flying leap and landed in a pile of dirt over in the corner of this place where we are."

"Such an introduction to New York," said Tucker, "to land in a pile of dirt in the Times Square subway station. Tsk, tsk, tsk."

"And here I am," Chester concluded forlornly. "I've been lying over there for three days not knowing what to do. At last I got so nervous I began to chirp."

"That was the sound!" interrupted Tucker Mouse. "I heard it, but I didn't know what it was."

"Yes, that was me," said Chester. "Usually I don't chirp until later on in the summer—but my goodness, I had to do *something*!"

The cricket had been sitting next to the edge of the shelf. For some reason—perhaps it was a faint noise, like padded feet tiptoeing across the floor—he happened to look down. A shadowy form that had been crouching silently below in the darkness made a spring and landed right next to Tucker and Chester.

"Watch out!" Chester shouted, "A cat!" He dove headfirst into the matchbox.

Chester buried his head in the Kleenex. He didn't want to see his new friend, Tucker Mouse, get killed. Back in Connecticut he had sometimes watched the one-sided fights of cats and mice in the meadow, and unless the mice were near their holes, the fights always ended in the same way. But this cat had been upon them too quickly: Tucker couldn't have escaped.

There wasn't a sound. Chester lifted his head and very cautiously looked behind him. The cat—a huge tiger cat with gray-green and black stripes along his body—was sitting on his hind legs, switching his tail around his forepaws. And directly between those forepaws, in the very jaws of his enemy, sat Tucker Mouse. He was watching Chester curiously.

The cricket began to make frantic signs that the mouse should look up and see what was looming over him.

Very casually Tucker raised his head. The cat looked straight down on him. "Oh him," said Tucker, chucking the cat under the chin with his right front paw, "he's my best friend. Come out from the matchbox."

Chester crept out, looking first at one, then the other.

"Chester, meet Harry Cat," said Tucker. "Harry, this is Chester. He's a cricket."

"I'm very pleased to make your acquaintance," said Harry Cat in a silky voice.

"Hello," said Chester. He was sort of ashamed because of all the fuss he'd made. "I wasn't scared for myself. But I thought cats and mice were enemies."

"In the country, maybe," said Tucker. "But in New York we gave up those old habits long ago. Harry is my oldest friend. He lives with me over in the drainpipe. So how was scrounging tonight, Harry?"

"Not so good," said Harry Cat. "I was over in the ash cans on the East Side, but those rich people don't throw out as much garbage as they should."

"Chester, make that noise again for Harry," said Tucker Mouse.

Chester lifted the black wings that were carefully folded across his back and with a quick, expert stroke drew the top one over the bottom. A "thrumm" echoed through the station.

"Lovely—very lovely," said the cat. "This cricket has talent."

"I thought it was singing," said Tucker. "But you do it like playing a violin, with one wing on the other?"

"Yes," said Chester. "These wings aren't much good for flying, but I prefer music anyhow." He made three rapid chirps.

Tucker Mouse and Harry Cat smiled at each other. "It makes me want to purr to hear it," said Harry.

"Some people say a cricket goes 'chee chee chee'," explained Chester. "And others say, 'treet treet treet,' but we crickets don't think it sounds like either one of those."


Magical America

"It sounds to me as if you were going 'crik crik crik,' " said Harry.

"Maybe that's why they call him a 'cricket,' " said Tucker.

They all laughed. Tucker had a squeaky laugh that sounded as if he were hiccuping. Chester was feeling much happier now. The future did not seem nearly as gloomy as it had over in the pile of dirt in the corner.

"Are you going to stay a while in New York?" asked Tucker.

"I guess I'll have to," said Chester. "I don't know how to get home."

"Well, we could always take you to Grand Central Station and put you on a train going back to Connecticut," said Tucker. "But why don't you give the city a try. Meet new people—see new things. Mario likes you very much."

"Yes, but his mother doesn't," said Chester. "She thinks I carry germs."

"Germs!" said Tucker scornfully. "She wouldn't know a germ if one gave her a black eye. Pay no attention."

"Too bad you couldn't have found more successful friends," said Harry Cat. "I fear for the future of this newsstand."

"It's true," echoed Tucker sadly. "They're going broke fast." He jumped up on a pile of magazines and read off the names in the half light that slanted through the cracks in the wooden cover "*Art News —Musical America*. Who would read them but a few long-hairs?"

"I don't understand the way you talk," said Chester. Back in the meadow he had listened to bullfrogs, and woodchucks, and rabbits, even a few snakes, but he had never heard anyone speak like Tucker Mouse. "What is a long-hair?"

Tucker scratched his head and thought a moment. "A long-hair is an extra refined person," he said. "You take an Afghan Hound—that's long-hair."

"Do Afghan Hounds read *Musical America?*" asked the cricket.

"They would if they could," said Tucker.

Chester shook his head. "I'm afraid I won't get along in New York," he said.

"Oh sure you will!" squeaked Tucker Mouse. "Harry, suppose we take Chester up and show him Times Square. Would you like that, Chester?"

"I guess so," said Chester, although he was really a little leery of venturing out into New York City.

The three of them jumped down to the floor. The crack in the side of the newsstand was just wide enough for Harry to get through. As they crossed the station floor, Tucker pointed out the local sights of interest, such as the Nedick's lunch counter—Tucker spent a lot of time around there—and the Loft's candy store. Then they came to the drain pipe. Chester had to make short little hops to keep from hitting his head as they went up. There seemed to be hundreds of twistings and turnings, and many other pipes that opened off the main route, but Tucker Mouse knew his way perfectly—even in the dark. At last Chester saw light above them. One more hop brought him out onto the sidewalk. And there he gasped, holding his breath and crouching against the cement.

They were standing at one corner of the Times building, which is at the south end of Times Square. Above the cricket, towers that seemed like mountains of light rose up into the night sky. Even this late the neon signs were still blazing. Reds, blues, greens, and yellows flashed down on him. And the air was full of the roar of traffic and the hum of human beings. It was as if Times Square were a kind of shell, with colors and noises breaking in great waves inside it. Chester's heart hurt him and he closed his eyes. The sight was too terrible and beautiful for a cricket who up to now had measured high things by the height of his willow tree and sounds by the burble of a running brook.

"How do you like it?" asked Tucker Mouse.

"Well—it's—it's quite something," Chester stuttered.

"You should see it New Year's Eve," said Harry Cat.

Gradually Chester's eyes got used to the lights. He looked up. And way far above them, above New York, and above the whole world, he made out a star that he knew was a star he used to look at back in Connecticut. When they had gone down to the station and Chester was

in the matchbox again, he thought about that star. It made him feel better to think that there was one familiar thing, twinkling above him, amidst so much that was new and strange.

WORDS TO WATCH

scrounging	haunches	tuffets	tiptoeing
subway	liverwurst	sympathetically	cautiously
newsstand	whisked	lurch	frantic
wistfully	logical	forlornly	hiccuping

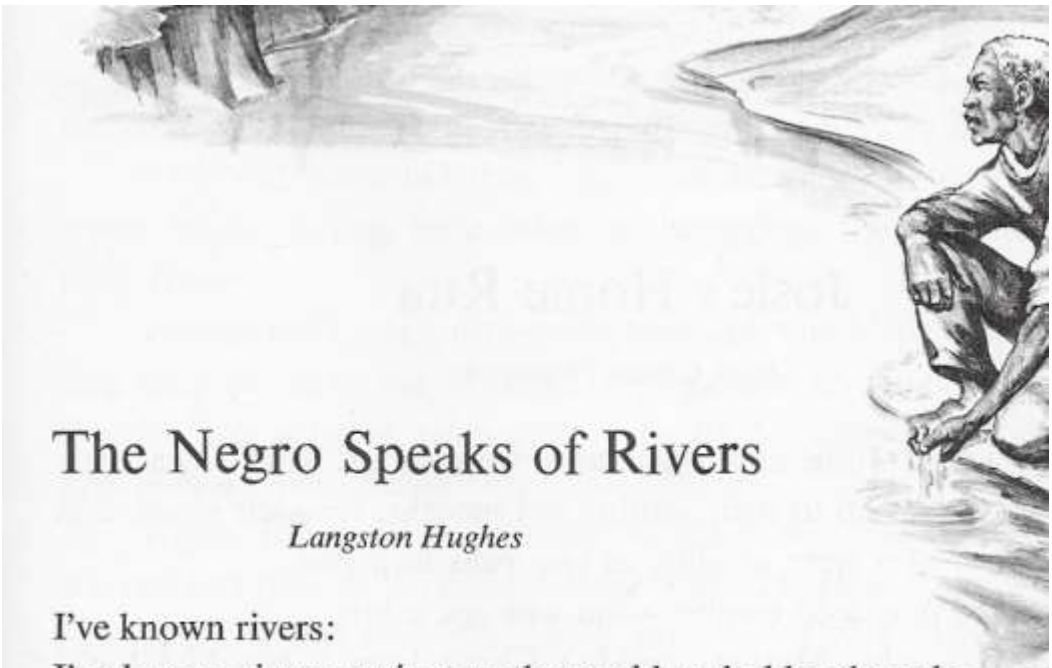
QUESTIONS

1. Why did Chester feel happier at the end of the story?
2. How had he got to the subway station?
3. Do you like Tucker Mouse? Why?

The Brown Thrush

Lucy Larcom

There's a merry brown thrush sitting up in a tree—
He's singing to me! he's singing to me!
And what does he say, little girl, little boy?
"Oh, the world's running over with joy!
Don't you hear? Don't you see?
Hush! Look! In my tree
I'm as happy as happy can be!"



The Negro Speaks of Rivers

Langston Hughes

I've known rivers:
I've known rivers ancient as the world and older than the
flow of human blood in human veins.

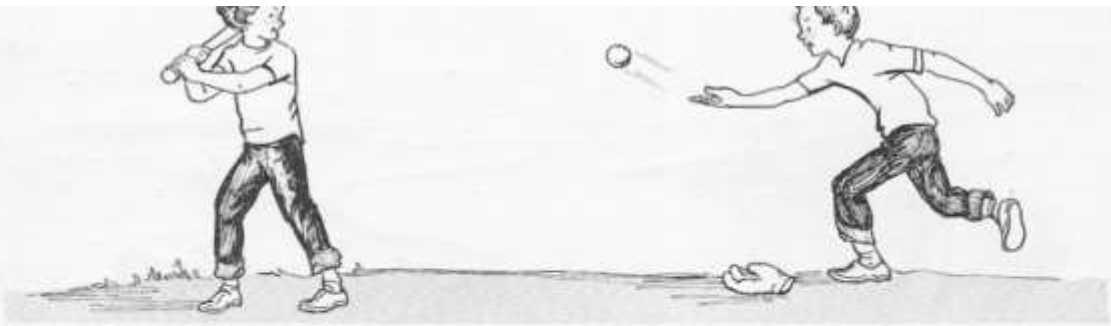
My soul has grown deep like the rivers.

I bathed in the Euphrates when dawns were young,
I built my hut near the Congo and it lulled me to sleep.
I looked upon the Nile and raised the pyramids above it.

I heard the singing of the Mississippi when Abe Lincoln went
down to New Orleans, and I've seen its muddy bosom
turn all golden in the sunset.

I've known rivers:
Ancient, dusky rivers.

My soul has grown deep like the rivers.



Josie's Home Run

Ruth Gipson Plowhead

Ten-year-old Josie and Joe Dawn were twins. And from their sturdy little bodies up to their smiling red mouths, freckled noses, and wavy red hair, they were as alike as two peas in a pod.

Josie had one deep trouble—she was not a boy.

"Why, oh, why, Mother, couldn't I have been a boy like Joe?" she would ask. "I can run faster than he can and climb higher, and I know I'd be a better ball player if I had a chance."

Josie was never so happy as when tagging after Joe, dressed as nearly like him as possible in overalls, sport shirt, and tight cap.

One day when she came home with her brother, she was almost in tears.

"Mother," she cried, "Joe won't let me play with the ball team when they are practicing."

"Aw, Mother," said Joe, who was very fond of his sister, "I like to play with Josie, and the boys like her. But when there's a whole crowd of boys and only one girl, it makes a fellow feel funny if the girl's his sister."

"Joe is right, Josie," said her mother. "You must come home if the whole team is playing, but when there are only two or three of Joe's friends, you may play with them if they want you."

"I'll have a ball team of my own," said Josie.

Alas, for Josie! Most of her friends preferred girls' games. However, she managed to find many chances to play ball. She found two or three girls who would play occasionally if she gave them candy or peanuts. She even persuaded her parents to pitch for her. And many an evening she and Joe's friends spent playing in the vacant lot across the street. She became a fair pitcher and a good batter.

"Watch out for Josie when she bats," the boys said. "If she hits the ball, you may have to run all the way to China to find it."

Josie did not mind their joking. And when the different school teams began playing each other in the spring, she was more excited than Joe.

Finally the Lowell fifth-grade team, of which Joe was a member, had only to beat the Whittier fifth graders to become champions. Besides, the winning team was to go to Allentown, six miles away, and play a game there.

Again and again Josie clenched her hands over the thought that she couldn't play on the team. No one wanted to play as much as she did.

If she could only play, how she would work! How she would run! How she would bat that ball, so that it would fly *beyond* China if necessary! Every evening she worked with Joe, and occasionally he grew cross when she insisted that he practice.

"You might let me alone a minute," he growled one night. "A fellow has to do something in this world besides play ball."

"I won't let you alone until the game is over," Josie said firmly. "If I can't play, you'll have to play well enough to make up for it."

And in spite of Joe's protests Josie kept her word. She made him practice.

The Friday before the great game came at last. The game was set for nine-thirty on the following morning. The team had their last practice after school, and Joe didn't come in until dinnertime. Then he sat hunched up in a big chair close to the fireplace.

"I don't want any dinner," he said, when his mother called him to the table. "I'm not hungry."

"Why, what's the matter?" asked Josie in alarm.

"Nothing. I'm just cold and tired," replied Joe crossly. "Can't a fellow rest a minute without everyone thinking something's the matter?"

Although Joe kept insisting that he was all right, his mother noticed that he was shivering. He went to bed very early.

By morning Joe admitted that he was too sick to play ball that day. "Oh, Mother," he said, "the team needs me. What shall I do?"

Josie was almost crying. "I'm sorry, Joe," she said. "What can I do for you? Shall I go and watch the game, or shall I stay with you?"

"Go and cheer for the boys just as loud as you can," answered Joe. "You know they always say that your cheering helps as much as my playing. And remember all the plays, so that you can tell me about them."

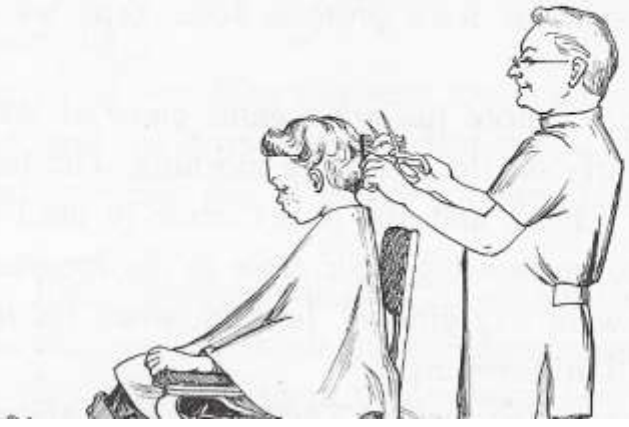
"Yes, Josie, you had better go," agreed Mother. "But you must hurry to the barber's before the game. Remember, you cannot go to Judy Ann's party this afternoon unless you have your hair trimmed. Tony knows the way I like it cut."

"All right, Mother," answered Josie, "and I'll go straight to the game from the shop. Oh, I wish you could play, Joe. But I'll remember everything and tell you all about it."

Joe groaned. "Go by and tell the fellows, will you?" he said.

A block from the house Josie met Roy Vane.

"Say, Josie," he roared, "have you heard about our bad luck? Bill hurt his knee last night. He and Joe are our stars, and we need them both to win. Good thing we still have Joe, but even with him we may not win, now that Bill is hurt."



Josie opened her mouth to tell about Joe. Then something stopped her. She had an idea. "You needn't go by for Joe," she said. "He can't come now. I'll be at the field to cheer for you at nine-thirty sharp." Then Josie ran like the wind, fearing she would be questioned about Joe.

All the way to the barbershop Josie debated a problem in her mind. But once in the chair, her mind was made up.

"Tony," she said, "cut my hair like Joe's. For once I'm going to have it cut the way *I* like it."

"I like it very short myself, Miss Josie, but your mother always seems to want your curls to show," said Tony doubtfully.

"Mother will like it short this time, I'm sure," said Josie. And she meant it. Her mother had never failed her and Joe when it came to a question of helping one another.

"If Mother knew I was doing this for Joe and the school, she wouldn't care," Josie argued to herself. "Surely she will understand."

When Tony had finished, she looked in the glass with great satisfaction. "Oh, I look more than ever like Joe," she thought. "I look so much like him that no one will know me." Then she jumped out of the chair and sped home like lightning.

It was easy for Josie to creep unseen into the basement, where the twins' bicycles, balls, bats, and play clothes were kept. It was also easy to slip into her brother's baseball suit.

When she had the red cap pulled down over her eyes, no one would have dreamed that it was not Joe himself who stepped gaily onto the ball field just before the game was called. Least of all did the team suspect.

They had a yell for each player. When they saw Josie, they stamped their feet and chanted:

"Here's Joe—Joe—Joe!
Now we'll go—go—go!"

Thrills ran up and down Josie's spine. "I have to make it go!" she thought. "If I don't, and the boys find out who it is, they'll tease me forever."

Finally the game started. But poor Josie was so excited that when her turn came to bat, she quickly fanned.

"What's got into you, Joe? Have you forgotten how to bat?" called the boys.

After that Josie settled down and played better. She got two hits, but it was not until the end of the last inning that her real chance came. The game had been evenly balanced—the score went up and down like a seesaw. First Lowell was ahead, then Whittier, next Lowell, and then Whittier again—on through the whole game.

The score now stood 15 to 14 in favor of the Whittier team. It was the last inning, two of the Lowell batters were out, there were three boys on base, and Josie was at bat. Her heart was thumping furiously, and her hands shook as she picked up the bat. Never before had she felt so strongly the need to win—not for her own sake, but for the honor of the team and for Joe.

"They think that Joe has not played his best, and I mustn't go back on him," she said to herself. "I must not lose this game!"

The little freckles stood out all over her face, like crowded blossoms on a pansy bed, as she gripped the bat. The ball was coming.

Josie swung furiously and missed. The umpire called, "Strike one."

Again the ball came, and again and again and again. Ball one. Ball two. Strike two. Ball three. Only one more chance!

Then Josie's courage came. She swung the bat, there was a loud crack, and away the ball soared! As the baseball flew, Josie flew too. Her feet skimmed along, barely touching the ground.

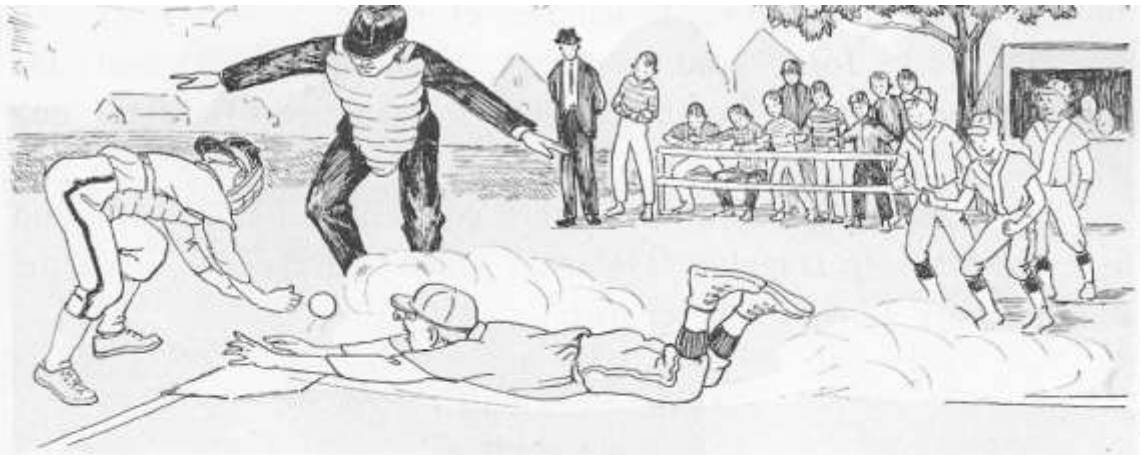
First base!

From the corner of her eye Josie saw a boy run home. The score was even, 15 to 15. On she sped. The ball had landed in a patch of weeds, and the Whittier fielders were frantically hunting it.

Second base!

The second runner had gone home—now the game was won.

Third base! She reached it just as the third runner touched the home plate. Then Josie saw the fielder pick up the ball and throw it. "Go it, Joe!" cried the spectators. "Beat the ball! Run!"



Josie flew—the ball flew, too, straight into the hands of the Whittier catcher. He fumbled, and down it rolled. Josie made a slide, just as she had seen the boys do many times. She reached out her hands, touched base, and lay there panting. The score was 18 to 15 in favor of Lowell.

"Hurrah for Joe! Hurrah for Joe!
He made things go! He made things go!"

yelled the boys in a frenzy of joy.

A tall man who was passing had paused to see what was going on. He was greeted by a dozen eager voices.

"Oh, Mr. Dawn," cried the excited captain, "you ought to have seen Joe! He won the game for us. Just made a home run!"

"Joe made a home run?" cried the amazed man. "What do you mean? Joe's at home in bed."

Hurriedly Mr. Dawn pushed his way through the crowd, until his eye lighted on his red-faced and panting little daughter just getting up from where she had been lying. He could always tell her from her brother by her sheepish little grin and the funny dimple that appeared in one cheek when she was embarrassed.

"Josie," he gasped, "what does this mean?"

Josie had recovered enough breath to pant, "I wanted the team to win. I can play as well as Joe, even if he is one of their best players.

When he couldn't come, I thought I would take his place and not let anybody know. I was going to tell Joe, of course."

"Oh, Josie, Josie," said her father, "what will you do next? Do you think your brother would be willing to take credit for something you did?"

But Josie looked up at him with a comical, half-guilty grin, and he could not help laughing. The team yelled and cheered. Even the Whittier boys joined in the chorus.

"Josie! Josie! Josie!
Ring around a rosy!"

And that was the way the Lowell fifth graders became champions. When the game at Allentown was played, Josie cheered so loudly for Joe's team that she helped win another Lowell victory.

WORDS TO WATCH

pod	tease	base	embarrassed
vacant	fanned	pansy	credit
clenched	inning	umpire	comical

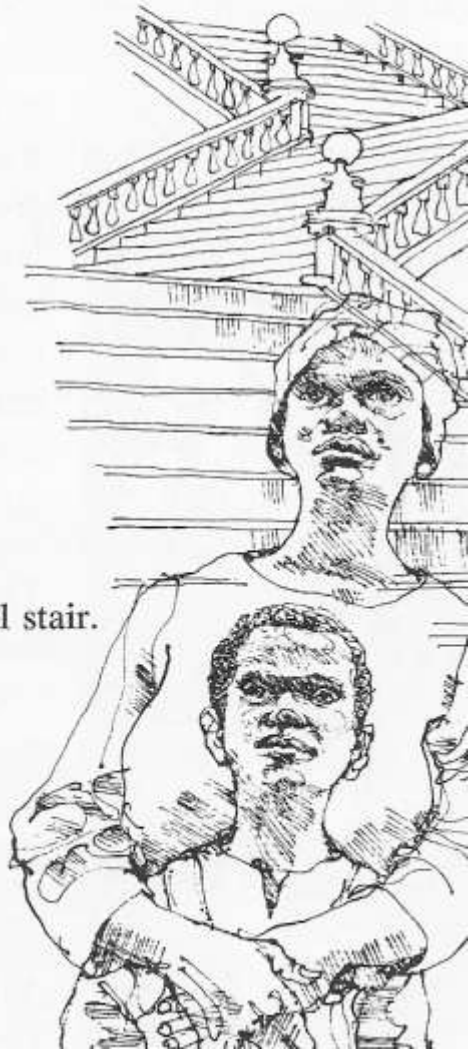
QUESTIONS

1. Do you think it was right for Josie to take Joe's place in the ball game? Why or why not?
2. Was she as good a player as her brother?
3. How did she make her brother's team win?

Mother to Son

Langston Hughes

Well son, I'll tell you:
Life for me ain't been no crystal stair.
It's had tacks in it,
And splinters,
And boards torn up,
And places with no carpet on the floor—
Bare.
But all the time
I'se been a-climbin' on,
And reachin' landin's,
And turnin' corners,
And sometimes goin' in the dark
Where there ain't been no light.
So, boy, don't you turn back;
Don't you set down on the steps
'Cause you find it kinder hard.
Don't you fall now—
For I'se still goin', honey,
I'se still climbin',
And life for me ain't been no crystal stair.



Adventure in Space

John Dille

Although it seemed to many people at the time that John Glenn had experienced the last word in adventure and daring, the flights of Carpenter, Schirra, and Cooper were also full of great moments of suspense, excitement, and human endurance. And these three flights, coupled with the missions of Shepard, Grissom, and Glenn, provided the nation with a solid foundation for future space exploration and solved many of the problems.

As it turned out, space flight was still so new when Scott Carpenter went up in *Aurora 7* that he experienced several new problems. First of all, the mission was delayed for more than two weeks by several mechanical defects that showed up in the equipment during the preflight check-out tests. But these wrinkles were eventually ironed out, and Carpenter was finally launched on the morning of May 24, 1962—about three months after Glenn's flight. The liftoff was smooth. "The first thing that impressed me when I got into orbit" Carpenter reported afterwards, "was the absolute silence of space."

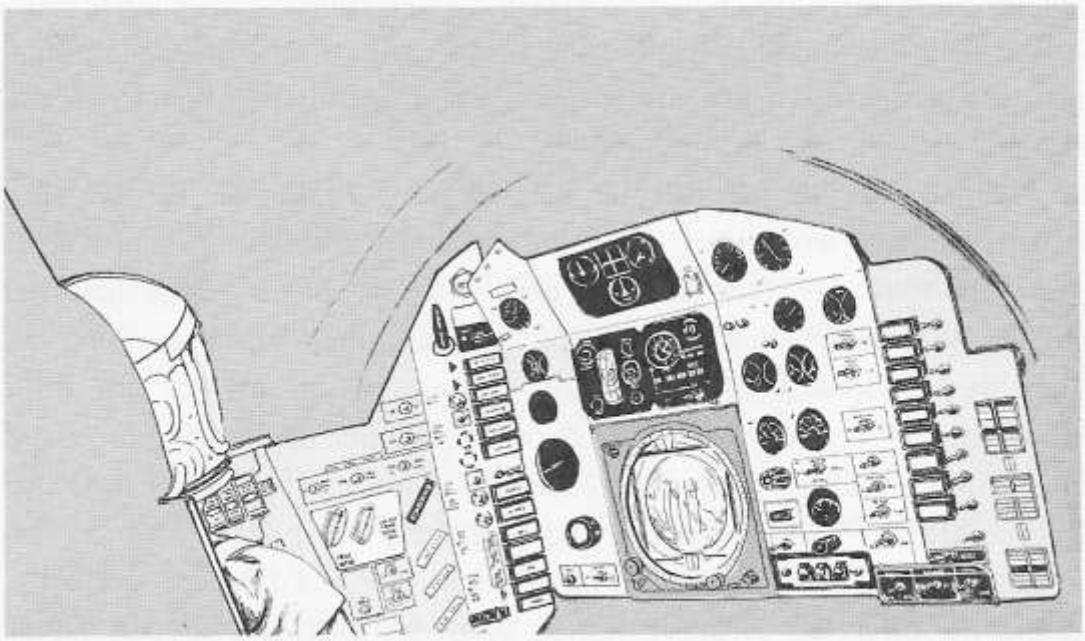
But then Carpenter's troubles began. The device that was supposed to keep his spacecraft properly lined up with the horizon failed to operate correctly. And Carpenter was so anxious to accomplish his various experiments in a hurry that he used up too much of his hydrogen peroxide fuel in the first orbit. Because of this,

Carpenter started to run dangerously low on fuel before the flight was over.

He realized the problem right away and tried letting his capsule drift through space without using the controls at all. There was no danger in this: the capsule was on a predetermined path and could not leave it until the retrorockets slowed it down. But, even so, Carpenter had to cut down on some of his experiments in order to save fuel.

This was not the only problem. Carpenter's space suit became overheated during the early part of his flight, making him extremely uncomfortable. As a result of this crisis, he brought back some ideas on how the suit could be improved for future flights so that other astronauts would not suffer from the same difficulty. This, of course, had been a major reason for the flight.

Scott Carpenter also solved the mystery of John Glenn's "fireflies." This discovery came near the end of his flight, and it happened entirely by accident. Carpenter was passing over Hawaii on his third and final orbit and was trying to do several things at once. He had to maneuver the capsule into position to get some pictures of the sunrise. He was trying to stow his equipment away so that it would not bounce around



during re-entry. And he was also communicating with the Hawaii tracking station about the exact timing of his retrorockets. Suddenly in the midst of all this work, one of the small luminous particles went floating past his window. Carpenter had seen the particles before on previous orbits, but he had not been able to get a picture of them.

"I reached out to grab the light meter to make a reading," he said. "As I did this, I hit my hand against the wall of the cabin. A whole cloud of particles flew off past the window. This was such a surprise that I started banging the wall all around me. Every time I hit it, more particles flew off. I was pretty sure from this that they were coming from the capsule itself, and not from other sources as John had thought." The engineers agreed with Carpenter's findings and decided that the particles were small bits of frost that collected on the spacecraft and then fell off again as it drifted along through space. They were trailing along in the capsule's orbital path in much the same way as Jules Verne's dead dog.

The greatest fear that had plagued John Glenn—the loose heat shield—did not recur during Carpenter's flight. But he had a hard time getting back to earth too. He landed so far from the rescue ships that for a long time many people feared he was lost. His troubles began when the retrorockets failed to go off on schedule, as they were supposed to do automatically. As soon as he realized this, Carpenter had to push a button to fire the rockets. But this caused about a three-second delay in the firing.

Since the capsule was going at a speed of 5 miles per second, this error meant he would land 15 miles beyond the recovery area where the ships were. But this was only part of the problem. When they did go off, the retrorockets did not produce as much braking action as they were supposed to. This meant that the spacecraft did not slow down enough and went coasting another 60 miles beyond the recovery area—for a total error now of 75 miles. Then, on top of all this, the spacecraft had not been positioned in exactly the precise attitude for re-entry when the rockets went off. Instead of being lined up perfectly along the direction of flight, it was slanted slightly off course. Thus,

the retrorockets fired at the wrong angle, adding so much extra mileage to the flight that Carpenter overshot the recovery fleet by a total of 250 miles.

Because of this error, Carpenter and *Aurora 7* landed in the water completely out of range of both the shipboard helicopters and the standby craft that were waiting for them. The engineers in the control center had been able to compute the general area Carpenter would land in by watching his descent on radar. They immediately dispatched some land-based Navy planes to search for him in the water. They also sent a radio message to Carpenter, telling him to be patient because it might take quite a while for rescuers to reach him.

The landing itself was not too rough. Carpenter's capsule dunked itself under water and then keeled over on its side just as all the others had. Then it righted itself and started to bob about on top of the small waves. Carpenter could see some drops of water inside his spacecraft. This meant the capsule might be leaking, so he decided it would be a good idea to climb out and get into the emergency raft that he could toss out ahead of him.

He did not have to open up the side hatch that might let in more water. Carpenter has thin hips, and he was able to crawl up through a narrow passage in the top of the spacecraft, push the life raft out ahead of him, and climb into it as soon as it inflated in the water. Taking with him only the camera he had used to record some of the strange sights of space, Carpenter waited patiently until Navy frogmen were parachuted into the water from low-flying airplanes. Carpenter talked with the frogmen as they splashed around attaching special gear to the spacecraft to keep it afloat. And three hours after he had hit the water, Carpenter himself was picked up by a seaplane that landed nearby.

The spacecraft was picked up later. It had not been a perfect flight, but Carpenter had managed to overcome his problems and save both himself and the spacecraft full of instruments. And NASA experts decided, after studying the record of the flight, that they could safely move on to the next step.

WORDS TO WATCH

endurance
orbit
predetermined
retrorockets
crisis
luminous
particles
plagued
heat shield
rescue
recovery
braking
angle
compute
radar
gear

QUESTIONS

1. What makes an astronaut?
2. What do pilgrims, pioneers, and astronauts have in common?
3. What were some of Scott Carpenter's troubles in space?
4. Which mystery did he solve?
5. What made Carpenter overshoot the recovery fleet by 250 miles?
6. What did Carpenter do after the landing before he was picked up?
7. Was Carpenter's space flight a failure or a success? Why?

The Atomic Age

Have you ever stopped to think what tables, chairs, food, clothing, air or water are made of? All these things that you can touch, feel, or see are called *matter*. The question of what *matter* is has mystified men from the beginning of time.

In the last few centuries many of the greatest scientists have discovered so much about matter that it takes thousands of books to describe what we now know. But much is still unknown, and many scientists are working day and night to solve this great mystery.

For example, we now know that all matter is made of very small particles called *atoms*. Atoms are so small that you would need many millions of them to make a little speck like the period after this sentence. When *atoms of the same kind* are together they are called an *element*. There are 105 different known elements. Every element is different from every other element in color, hardness, or in other ways.

The first person to think that all matter was made of atoms was a man named Democritus, who lived in Greece over two thousand years ago. He reasoned that if you took an apple and cut it into halves, and then took one of those halves and cut it into halves, and if you kept cutting the halves into halves, you would finally hit upon something which could not be divided any more.

Democritus called this particle "atomos", which is the Greek word for "cannot be divided." This is where our name for the *atom* comes from.

Unfortunately Democritus could not prove his idea, partly because atoms are much too small to be seen.

Shortly after Democritus, lived a man named Aristotle. He did not believe in Democritus' atoms, but thought that all things were made of four elements: earth, air, water, and fire, and that things could change from one element into another.

Aristotle's explanation was simpler; men could see the elements he spoke about, and they believed him because he was also a great

philosopher. Even though Democritus had been right, men forgot about atoms for the next two thousand years.

But although they forgot about atoms, *matter* still puzzled them greatly. What was it made of? Why was some matter hard, some liquid, some dry, some moist?

No one could find a better explanation to describe matter than Aristotle's, and everyone still tried to fit all matter neatly into his four elements: fire, water, air, and earth. Did water become earth when it froze? Did gold become water when it melted? Did wood become fire when it burned?

About four hundred years ago at Oxford University, professors and students were fined five shillings for making a statement contrary to the teaching of Aristotle! Why should anyone question Aristotle, one of the greatest men of all times?

Three hundred years ago, men slowly began to realize that Aristotle had not always been right. Robert Boyle, one of the critical thinkers of that time, was the first to question that all matter was made from earth, fire, water, and air.

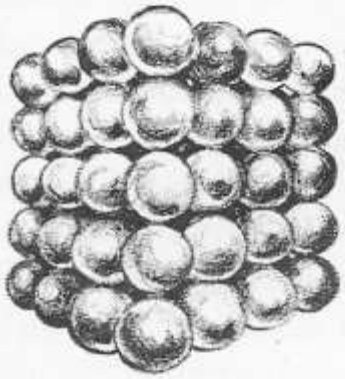
He also attacked the old alchemists who worked tirelessly, trying to make gold from lead, iron, or other substances. Was it possible to "make" gold from other substances? Boyle thought not. He was convinced that gold could not be "made." To him gold was an *element,* something that only nature could make. Boyle thought that there were quite a few basic *elements* such as gold, copper, silver, mercury, and more. All other substances, he said, were made from these elements mixed together in certain proportions.

Very few men believed in what Boyle taught until about a century later Lavoisier proved him right.

Lavoisier found out that when certain elements burn, they gain weight. This sounds unbelievable, because when things burn they seem to shrink into a small heap of ashes. However, Lavoisier was not satisfied with what he saw. He was the first to measure and weigh smoke, gases, soot, vapors, and ashes, and their combined weight was greater than that of the thing which had been burned.

Through countless experiments Lavoisier learned and proved what Boyle had said a century before: all matter is made of a small number of basic elements. Lavoisier found which substances are elements, and he developed a list of twenty-eight. He recognized correctly that the thousands of different substances that we see around us are simply a combination of a small number of elements.

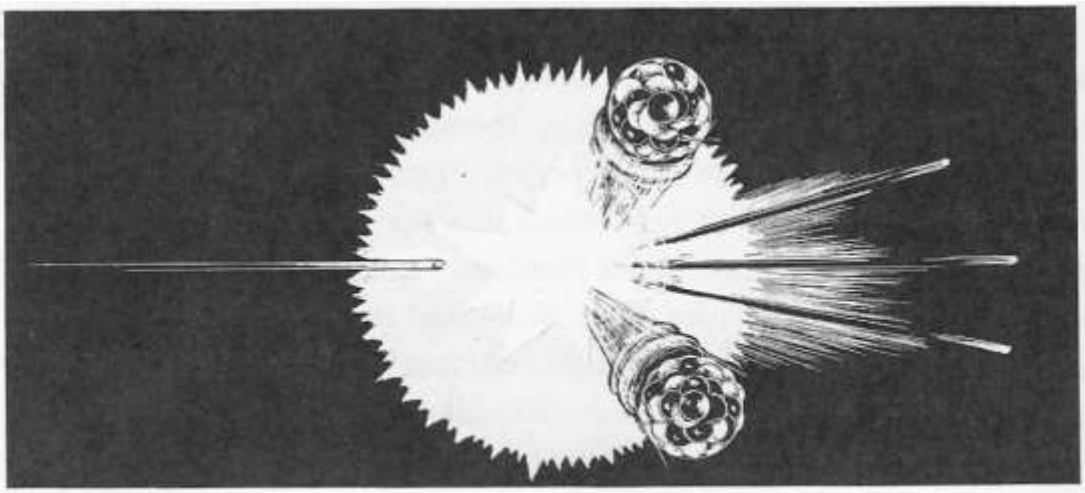
Shortly after Lavoisier, men discovered the relationship between *elements* and *atoms*. Scientists proved that Democritus, the Greek philosopher, had been right after all: all matter is made from very small particles called *atoms*. They showed also that each *element* is a collection of *atoms of one particular kind*. Gold is yellow and a heavy, soft metal because of the peculiar nature of *gold atoms*, iron is a strong metal that rusts in the air because of the peculiar nature of *iron atoms*, and similarly for all elements.



Some of these elements have strange properties. Men were completely baffled when *radium* was discovered, because they found that it gave off rays. They decided to call this ability of an element to give off rays *radioactivity*. Radium also constantly gave off heat. No one could imagine where this endless, mysterious source of heat came from, until Albert Einsten offered his explanation.

Albert Einstein was one of the greatest scientists of all time. He published his *Theory of Relativity* in 1905, when he was only twenty-six years old. One of his conclusions was that *matter* can be changed into *energy*, and that *energy* can be changed into *matter*. This means that *energy* and *matter* are the same thing in two different forms.

What did Einstein mean by *energy?* What does energy mean to you? You have all used the word before. You say, "He has a lot of *energy*," or "I don't have any *energy* today." Instead of using the word *energy*, you could also say "I am unable to work today," or "I have no pep." In scientific language *energy* has a very special meaning which



is almost the same. There is a great deal of "pep" stored up in every atom, or a great deal of "ability to do work." This is called *atomic energy*. Our whole universe is powered by atomic energy because all suns and stars give off light and heat from their enormous atomic fires.

Einstein gave scientists a formula for atomic energy, but in 1905 this atomic energy was only an idea. No one knew how to set free this tremendous amount of energy that is in matter.

In 1935 Otto Hahn and his co-workers watched the uranium atom split in two. They observed that when uranium atoms split, they give off a large amount of energy, just as Einstein had predicted. At last man had found a way to change matter into energy. He had split the atom and released the energy within it.

Not long afterward, in 1942, the "Atomic Age" was born at the University of Chicago. Here for the first time since the discovery of the atom, man tried to make the energy in the atom *work for him.*

Enrico Fermi and a group of scientists met to start a *chain reaction.* They believed that if they placed pieces of uranium close together in a *pile* of the right size, the uranium would start to heat itself from the splitting atoms.

On December 2, 1942, they decided that they finally had enough uranium to try the experiment. The men carefully pulled out the control rods to allow the uranium to start the chain reaction. Slowly the atomic

counters started to tick. They ticked faster and faster until they started to hum. The instruments showed that the chain reaction had started!

After twenty-eight minutes the control rods were put back. The chain reaction stopped!

The miracle had happened! These men had not only been able to start an atomic chain reaction, but they were able to stop it! At last man had conquered the atom! From now on he would be able to use its tremendous power. But not only that, man would also have to *fear* this immense source of energy. If used widely in a war in the form of atomic bombs, it could destroy the entire world. The atomic bomb is the most destructive weapon ever developed by man.

The responsibility is ours and that of future generations to use this fantastic gift of atomic energy wisely. It is up to us to make it our servant and our friend.

Thousands of scientists and engineers are now working on harnessing the atomic energy from uranium. They have been so successful that atomic power can already be produced for about the same cost as power from coal. This means that in future years more and more of our electrical power will come from the tiny uranium atom instead of from burning coal.

Some ships already have atomic power plants that drive their propellers. Since there is such an immense amount of energy locked in each atom, only a few pounds of uranium are required to send a large ship all the way around the world.

The Atomic Age has many other wonders in store for us, wonders we have not even dreamed about. The future depends upon how wisely men use their new knowledge.

QUESTIONS

1. What is an atom? What is an element?
2. What kind of energy are we talking about when we speak of atomic energy?
3. What do we have to fear from atomic energy?

4. What benefits can atomic energy bring to mankind?
5. Does the electric power in your house come from atomic power, from burning coal, oil or gas, or from water power?

WORDS TO WATCH

mystified	Lavoisier	conclusions	predicted
Democritus	combination	energy	Enrico Fermi
Aristotle	relationship	formula	immense
Boyle	properties	Otto Hahn	responsibility
substances	Einstein	uranium	harnessing

PART NINE

All Kinds of People

Isn't it strange some people make
  You feel so tired inside,
Your thoughts begin to shrivel up
  Like leaves all brown and dried!

But when you're with some other ones,
  It's stranger still to find
Your thoughts as thick as fireflies
  All shiny in your mind!

Rachel Field

in Just-

E. E. Cummings

in Just-
spring when the world is mud-
luscious the little
lame balloonman

whistles far and wee

and eddieandbill come
running from marbles and
piracies and it's
spring

when the world is puddle-wonderful

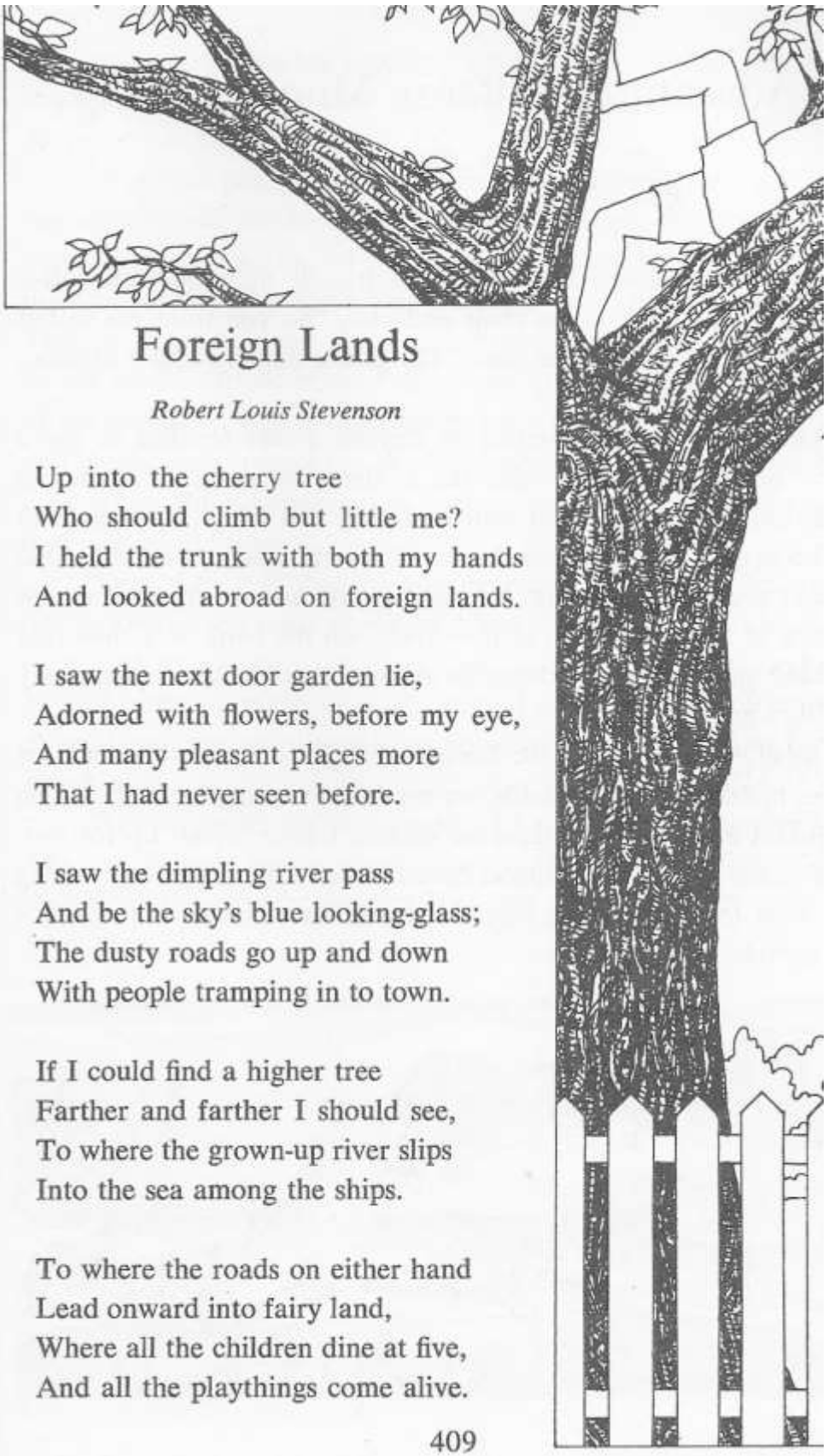
the queer
old balloonman whistles
far and wee
and bettyandisbel come dancing

from hop-scotch and jump-rope and

it's
spring
and
  the

    goat-footed

balloonMan whistles
far
and
wee



Foreign Lands

Robert Louis Stevenson

Up into the cherry tree
Who should climb but little me?
I held the trunk with both my hands
And looked abroad on foreign lands.

I saw the next door garden lie,
Adorned with flowers, before my eye,
And many pleasant places more
That I had never seen before.

I saw the dimpling river pass
And be the sky's blue looking-glass;
The dusty roads go up and down
With people tramping in to town.

If I could find a higher tree
Farther and farther I should see,
To where the grown-up river slips
Into the sea among the ships.

To where the roads on either hand
Lead onward into fairy land,
Where all the children dine at five,
And all the playthings come alive.

Adventures of Baron Munchausen

R. E. Raspe

A NARROW ESCAPE

Baron Munchausen had feasted his friends right well, and after supper he leaned back in his chair and said, "So you want me to tell you of my adventures in the past." His guests eagerly urged him on, so he began his story.

"Once, when I was hunting in Ceylon, I was terrified to see a gigantic lion approaching, with the evident intention of devouring me. My gun was only loaded with bird-shot, and I had no other with me. The savage animal shook his head several times, uttered a loud roar, and prepared to spring. I turned to fly, and — my flesh creeps even now at the recollection of it — there, on the bank of a river that lay behind me, was a huge crocodile with his terrible jaws open, ready to swallow me!

"Imagine, gentlemen, the horror of my situation — behind me the lion, before me the crocodile, on my left a rushing torrent, and on the right an abyss full of poisonous snakes! I gave myself up for lost, and fell to the ground in an almost fainting condition, expecting nothing better than to meet with a horrible death from one or the other of these terrible animals.

"After waiting a few seconds I heard a violent noise, different from any that I had ever heard before. I ventured to raise my head, and what do you think had happened?

"The lion had, in his eagerness, jumped clean over me into the crocodile's jaws; the head of the one stuck in the throat of the other, and they were struggling to free themselves. I quickly sprang to my feet, drew out my hunting-knife, and with one blow severed the lion's head. Then, with the butt-end of my gun, I rammed the head farther into the throat of the crocodile, and destroyed him by suffocation. The hide of the crocodile, which was exactly forty feet in length, I had stuffed, and it now forms one of the chief attractions in the museum at Amsterdam, where the superintendent relates the story to all spectators, with hair-raising additions.

"One of these is that the lion jumped right through the crocodile, but as soon as the head appeared, Monsieur the Famous Baron (as he is pleased to call me) cut it off, and three feet of the crocodile's tail as well, whereupon the crocodile turned round, snatched the knife out of my hand, and swallowed it so greedily that it pierced his heart and killed him!

"I need not tell you how annoyed I was by these exaggerations. In this age of doubt people who do not know me might possibly be led to disbelieve the real facts when they are mixed up with such absurd inventions."

THE SAVAGE BOAR

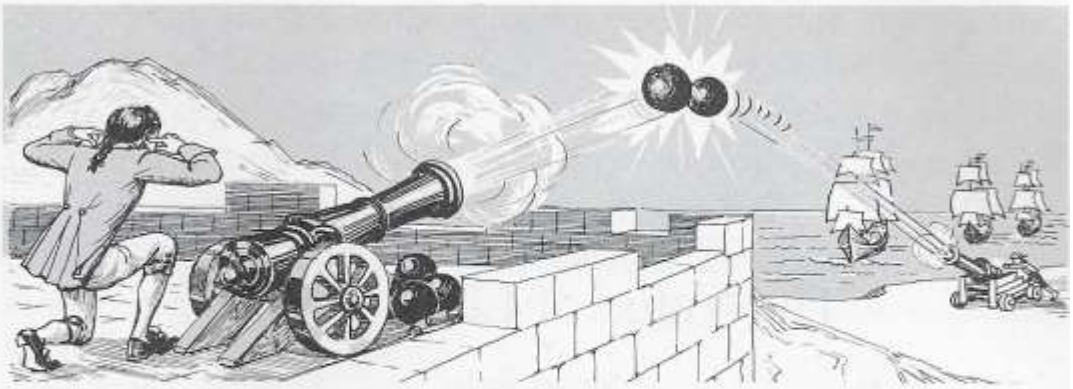
"At another time, when I was returning from a hunt, with an empty gun (having used all my ammunition), a raging wild boar rushed at me. Well, you know how unpleasant such an encounter may be, so I am sure none of you will think me a coward for hastily climbing the nearest tree; it was a young birch which could hardly bear my weight. The boar made a dash for the tree, but was a moment too late, for I had just drawn my legs out of his reach. But so violent was his rush that his tusks went through the trunk of the tree and projected an inch through the other side. I slid down the tree, picked up a stone the size of my fist,

and hammered down the projecting points of the tusks. You can imagine what a narrow escape I had when I tell you that the beast weighed five tons — a good deal for a wild boar."

HOW THE BARON SAVED GIBRALTAR

"Some years later I made a voyage to Gibraltar to visit my old friend, General Elliott. He received me with joy and took me for a stroll along the ramparts to examine the operations of the enemy. I had brought with me an excellent telescope, which I had purchased in Rome. Looking through it, I saw that the enemy were about to discharge a thirty-six pound cannon at the very spot where we were standing. I rushed toward our nearest cannon, a forty-eight pounder, and placed it exactly facing that of the enemy. I watched carefully till I saw the Spanish gunner apply a match to the touchhole, and then I, too, gave the word 'Fire.'

"Both reports rang out at the same instant, and the two cannon balls met halfway with amazing force. Ours, being the heavier, caused the enemy's ball to recoil with such violence as to kill the man who had discharged it. It then passed through the masts of three ships which lay in a line behind each other, and flew across the Straits of Gibraltar some miles into Africa. Our own ball, after repelling the other, proceeded on its way, dismounted the very cannon which had just been used against us, and forced it into the hold of the ship, where it fell



with so much force as to break its way through the bottom. The ship immediately filled and sank, with about a thousand Spanish sailors and a large number of soldiers on board, who were all drowned.

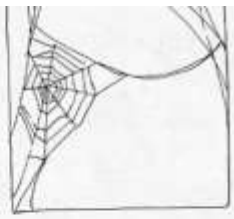
"You can see for yourselves that this strange tale must be true, however improbable it sounds, or else how could it possibly have happened?"

WORDS TO WATCH

recollection	severed	Gibraltar	proceeded
torrent	suffocation	ramparts	dismounted
abyss	absurd	recoil	improbable

QUESTIONS

1. What kind of man is Baron Munchausen?
2. How did the Baron escape the lion and the crocodile?
3. How did the Baron claim to have killed over a thousand men with one shot?
4. Why is the Baron certain that these stories must be true?
5. On what continent did one of the cannon balls land?



The Value of Little Things

Samuel Smiles

Unfailing attention and painstaking industry mark the true worker. The greatest men are not those who "despise the day of small things," but those who improve them the most carefully.

Michelangelo was one day explaining to a visitor at his studio what he had been doing upon a statue since his last visit. "I have retouched this part — polished that — softened this feature — brought out that muscle — given some expression to this lip, and more energy to that limb." "But these are trifles," remarked the visitor. "It may be so," replied the sculptor; "but remember that trifles make perfection, and perfection is no trifle."

It was said of Nicolas Poussin, the painter, that the rule of his conduct was that "whatever is worth doing at all is worth doing well." When a friend asked him, late in life, why he had become so famous among the painters of Italy, Poussin answered, "Because I have neglected nothing."

The difference between men consists largely in the way in which they observe. The Russian proverb says of the man who is not observing, "He goes through the forest and sees no firewood." "The wise man's eyes are in his head," says Solomon, "but the fool walketh in darkness." It is the mind that sees as well as the eye. Where unthinking gazers observe nothing, men who look carefully see into the very root of what is going on around them; they are careful in noting differences, making comparisons, and seeing the true, deep meaning of everything.

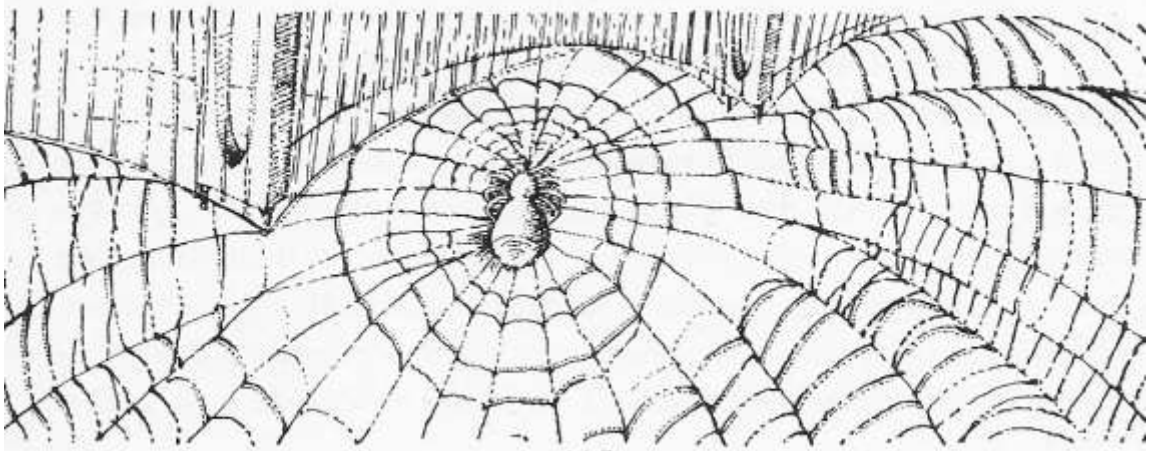
Many men before Galileo had seen a hanging weight swing before their eyes with a measured beat, but he was the first to discover the

value of the fact. One of the workmen in the cathedral at Pisa, after filling with oil a lamp which hung from the roof, left it swinging to and fro. Galileo, then only eighteen years old, watched it carefully, and finally thought of applying the principle to the measurement of time. But he studied the idea and labored over it fifty years before he completed the invention of the pendulum. This invention, for the measurement of time and for the uses of astronomy, is one of the most important ever made.

While Captain (afterward Sir Samuel) Brown was studying the building of bridges, with the view of contriving a cheap one to be thrown across the River Tweed, near which he lived, he was walking in his garden one dewy autumn morning. There he saw a tiny spider's net suspended across his path. The idea at once came to him that a bridge of iron ropes or chains might be made in the same way, and the result was the invention of his suspension bridge.

It is the watchful eye of the careful observer which gives apparently trivial things their value. So small a matter as the sight of seaweed floating past his ship helped Columbus to put down the mutiny which arose among his sailors because they had not discovered land, and to show them that the New World was not far off. There is nothing so small that it should remain forgotten, and no fact so trifling but may prove useful in some way if understood.

Who would have thought that the famous chalk cliffs of England had been built up by tiny insects, seen only by the aid of the microscope? Little creatures of about the same kind have built many islands



of coral in the sea. And who that sees such tremendous results arising from such very tiny causes can doubt the power of little things?

The close observation of little things is the secret of success in business, in art, in science, and in every pursuit in life. Human knowledge is only a collection of small facts, made by one generation of men after another. The little bits of knowledge and experience have been carefully treasured up until at length they have grown into a mighty pyramid.

WORDS TO WATCH

painstaking	perfection	principle	trivial
despise	neglected	pendulum	mutiny
trifles	comparisons	astronomy	pursuit

QUESTIONS

1. Where did Captain Samuel Brown get the idea for his invention of the suspension bridge?
2. What is the secret of success in every pursuit in life, according to Samuel Smiles?

A World in a Grain of Sand

William Blake

To see a world in a grain of sand
And a heaven in a wild flower,
Hold Infinity in the palm of your hand
And Eternity in an hour.

The Humbug

Did you ever go on an excursion with your teacher, or some older person, who knew all of the trees and flowers along the roadside; who could give you the name of every bird and butterfly that crossed your path; who could tell you a story about every plant and read you a sermon from the stones in the brook? Did you?

Such a person is said to be a lover of nature, and if he is a very great student of nature and knows a great many of her secrets, he may be called a naturalist.

The naturalists tell us that thousands of years ago there were many kinds of animals living in the sea and on the land that exist no longer; they are said to be extinct. We know there were such animals because occasionally their bones are found in swamps or possibly in coal mines. Sometimes the remains of an animal are found embedded in a rock. These are called fossil remains, and by studying them it is possible to tell the exact size and form of the extinct animals.

Some men devote their lives to this kind of study and become very skillful in reading the earliest history of the world from the fossil remains. Such a man was Louis Agassiz, one of the most famous naturalists that this country has ever known. For many years he was connected with Harvard College as a teacher and lecturer.

Agassiz enjoyed nothing better than an excursion to the country with a class of wide-awake boys. To direct their search for specimens

and to answer their many questions about their discoveries was a real pleasure to the great teacher. He was so good-natured that no matter what happened he never lost patience, and his learning was so great that if a strange specimen were brought him, he could instantly name it and give its history.

A story is told of a trick some of his boys tried to play on him one time, in order to test his skill in identifying strange specimens. They caught a number of insects and used parts of them in constructing a new and wonderful specimen. They took the head of a beetle, the wings of a dragonfly, the legs of a grasshopper, and the body of a bumblebee, and put the parts together as skillfully as they could. When their new creation was finished, the entire class marched into Professor Agassiz's room to show him their specimen.

"We found a very strange specimen in the woods yesterday, Professor Agassiz, and none of us can identify it," said the leader. "Can you tell us what it is?"

The great naturalist glanced at the specimen, and instantly a twinkle came into his eyes. "Boys," he said, "that's a marvelous insect; a wonderful specimen! But, tell me, did any of you get close enough to hear it hum?"

"Oh, yes!" exclaimed the class. They had all heard it hum.

"Well, then, it's not so strange," said Mr. Agassiz; "in fact, this species is rather common. We encounter it in one form or another almost every day. It's a HUMBUG!"

WORDS TO WATCH

humbug	embedded	specimens
Louis Agassiz	fossil	species

QUESTIONS

1. How did Professor Agassiz trap the boys in their own joke?
2. Where are the bones of extinct animals sometimes found?
3. What kind of teacher was Professor Agassiz?
4. Where did Professor Agassiz teach?