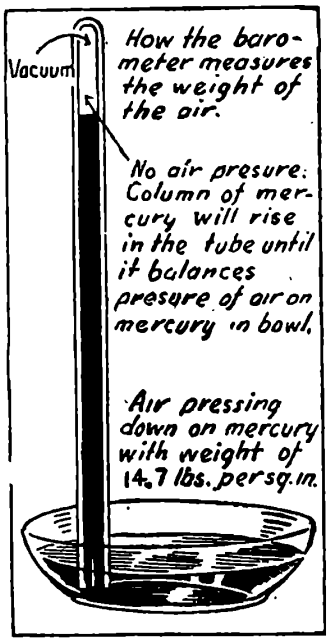
THE BAROMETER

ONE day near the middle of the 17th century a German scientist, who was always trying new and strange experiments, astonished his neighbors by erecting on the wall of his house a strange looking tube. The tube was something more than 34 feet long, and was made of brass except the top section, which was made of glass. It was closed at the top. The lower end of the tube was dipped in a basin of water. The water was seen to rise in the tube to a height of about 30 feet.

The top of this column of water was seen through the glass, and on it floated the figure of a little wooden man. "The little weather man" the people called it, for they saw that it rose higher in fair weather, and went down in stormy weather. The neighbors thought it was a work of magic, but it was really a water barometer, and was made on scientific principles. There was no magic about it.



Only a few years before this German scientist was trying this interesting experiment, an Italian scholar, who was a pupil of the famous scientist Galileo, invented the mercury barometer, the form of the instrument now in common use.

The barometer is an instrument for measuring the pressure of the atmosphere. Mercury is used in the tube instead of water, because the greater weight of the mercury reduces the length of the required tube to 36 inches instead of 34 feet. Mercury is a well-known heavy silver-white liquid metal. It is frequently called quicksilver.

To make a simple barometer you take a glass tube 36 inches long which is closed at one end. Fill it with mercury. You then turn the tube upside down, keeping your finger over the open end. Place the open end in a vessel of mercury. When your finger is removed, only a little of the mercury will run out of the tube into the vessel, for the pressure of the air upon the surface of the mercury in the vessel supports the weight of the column of mercury. The space in the tube above the column of mercury is nearly a perfect vacuum as indicated in the diagram, so there is no pressure on the top of the column. (A vacuum is a space from which the air and any other material has been taken.)

The mercury column in the tube remains about 30 inches high, and this means an air pressure of 14.7 pounds to the square inch. By a scale attached to the glass tube we can measure the changes in the height of the mercury resulting from the changes in air pressure.

When the conditions of the weather changes, the air pressure changes, and so the tube of mercury rises or falls. This makes the barometer an instrument of great importance in telling what the weather will be. When the mercury in

(*Please turn to page* 128)

HAYDN . . .

(*Continued from page* 127)

him the degree of Doctor of Music (Mus. D.).

In London he was deeply impressed by hearing much of Handel's oratorio music (see the *Music Appreciation Section* of the February, 1940, issue of *The Young Citizen*), so he finally wrote an oratorio which has become very famous. This oratorio is called *The Creation* and tells the Bible story of the creation of the world.

The last ten years of Haydn's life were uneventful, and as his strength failed, he almost stopped writing music. He died in 1809.

Haydn had a very bright, sunny, lovable nature. He was simple-hearted, hard-working, religious, honorable, and manly. His music is as happy as was his life. It is pleasant to remember that children were always attracted by his gentle, cheerful nature, and that they liked to call him, as did grownups, too, their beloved "Papa Haydn."

TEST QUESTIONS

1. In what country was Joseph Hayden born? When?
2. Can you tell of Joseph's parents?
3. What early evidence did Joseph show of musical ability?
4. With what kind of people was the boy Joseph surrounded?
5. What did a relative offer to do?

THE DUCK HOUSE

(*Continued from page* 99)

had been eaten. The ducks splashed here and there, every now and then uttering their funny language.

Rosa and Anita waved their hands to the ducks as the two girls and Mr. Santos rowed away.

Mr. Santos gave Rosa six eggs. She ran home and sat on the steps. She counted the eggs and murmured, "I will cook these eggs for Ma when she comes home."

RAINDROPS

(*Continued from page* 100)

on our picnic another day." —*Adopted.*

SOMETHING TO FIND OUT

1. What causes the drops of water to leave the river and go up above the earth? (Ask your teacher.)
2. In what form do the water drops go up above the earth? (Vapor)
3. What is vapor? (Ask your teacher.)
4. What is a raincloud?
5. Why do the raindrops fall from the cloud?
6. Into what places do the raindrops fall?

THE BAROMETER

(*Continued from page* 117)

the barometer falls, the air pressure has been lessened, because a storm is approaching. Increasing pressure, which causes a rising barometer, is a sign of fair weather.

The height of the column of mercury in the barometer varies with the attitude. Thus when a barometer is carried to the top of a high tower or up a mountain, the mercury falls lower and lower, because the air pressure decreases with the altitude. By comparing the reading at sea-level with readings at other levels, the altitude of any place can be readily calculated.

REVIEW

1. Tell of the German scientist's early experiment with a barometer.
2. What is a barometer? Describe it.
3. Why does the barometer indicate weather conditions?
4. How does the barometer measure altitudes?
5. Have you studied the diagram on page 117?