

completed. It was found that a long pace, nearly four inches longer than our yard, repeated 40,000,000 times, would circle the world. That is, the distance from the equator to the pole would contain 10,000,000 of these long steps. This long step we name *metron*, from the Greek word *metron*, "a measure." The meter is, therefore, the *unit* of the new system. Now, who will tell me how many meters in a quadrant of the earth—that is—

S. A quarter of the earth's circumference—10,000,000.

T. Now, I mark the length of the meter on the board, and also on the floor. See if you can step a meter, from toe to toe, or from heel to heel.

(Several try.)

T. Now, I give you an exercise for to-morrow. Practise stepping meters. I will examine you in this way. I will take you a distance from the school house and ask each one to judge the number of meters he is distant from the building. I will record your estimates, then measure the number of meters. I will give 100 marks to any one not one meter astray; take two points for an error of *one* meter, four for an error of *two*, etc. Now, we shall see who will come off best.

II.

T. To-day we take up the subdivisions of the meter. I see quite a number of you can step a meter pretty accurately. How many such steps will go around the world?

CHORUS. 40,000,000.

T. Now here we have a tenth of a meter. Each one must take home with him an accurate copy of it. Ten of them will make a meter. Now, if I give you the fraction $\frac{1}{10}$, what would you call it?

S. A decimal.

T. What do you mean by that?

S. That the digit coming after the decimal point means tenths of a unit; a figure in the next place a tenth of a tenth and so on.

T. You have nothing new to learn then. *Deci* always means a tenth in this system. What might we call this measure, then?

S. Decimeter.

T. Correct. The meter is a natural measure. You found it to be a convenient length for pacing. Is the decimeter a convenient unit for any purpose?

S. Yes; it is about the breadth of the palm of the hand.

T. That depends on its size, of course. But you are quite right. "Palm" and "hand" were old

units of measurement,—very convenient for rough estimations. So is the decimeter—it is an approximate hand-breadth. Now let us estimate how many decimeters high this desk is—this blackboard—this room?

(All join in estimating.)

T. What do we call the hundredth part of a dollar?

S. A cent.

T. Join the word with an *i* to meter as in our last case, and what shall we have?

S. Centimeter.

T. Very good. The centimeter is the tenth part of —

S. Of a decimeter.

T. Will it make a convenient natural unit?

S. Yes; it is about the breadth of the little finger.

T. Very good. The top of the little finger comes pretty near it. How many centimeters long is this pencil—that one, etc.

(All join in estimating.)

T. What is the tenth part of a cent?

S. A mill. The tenth part of a centimeter would therefore be a *millimeter*, I suppose?

T. Quite correct. I see you have nothing exactly new to learn in these words. Can you find any convenient natural measure nearly a millimeter?

S. The thickness of a stout thumb nail.

ANOTHER S. Nearly the thickness of a new ten cent piece.

T. Supposing a ten cent piece to be one millimeter in thickness, how many form a pile one meter high?

S. 1,000.

T. How many ten cent pieces in a rod of silver of the diameter of a ten cent piece which would encircle the world?

S. 40,000,000,000.

T. Measure the length of the school room.

S. (Measuring.) Nine meters, seven decimeters, three centimeters, and eight millimeters.

T. Can it not be written down more shortly?

S. Yes; 9.738.

T. Very good; that is a good illustration of the neat way in which our new measure can express lengths. A mile is equal to 1609.315 meters. Read this,—not as a decimal.

S. Sixteen hundred and nine meters, three decimeters, one centimeter, five millimeters.

T. Is it necessary to read the number this way?

S. No; it might be read in meters and decimals.

T. Well, I expect each one of you to take these measures home with you, and to make measures equal to them to be used for measuring things about the house or farm. We will soon then have plenty to buy cheaply at the store,—when it is found people want them.