What is the interest of £500 at 5 per cent. for two years?—5 per cent. means what?—the interest on a hundred pounds for a year: then the interest of £1 will only be the one hundredth part of that: work it out, ·05—the interest of £2 will be twice as great; of £3 three times as great; and of £6 six times as great, etc. Having the interest for one year, the interest for any number of years will be the interest for one, multiplied by that number, etc.

Children sometimes get into the way of working out questions of this kind, without having any definite idea of what is meant by so much per cent., etc.; this they should be made thoroughly to understand, as bearing upon many other questions besides those on interest, as will be seen from the examples given; also what is meant by so much in the shilling, so much in the pound, etc.,—that if a person spends twopence in the shilling in a particular way, and lays out two, three, ten shillings, he spends 4d., 6d., 20d., etc., in that particular thing.

A penny in the shilling is twenty-pence in the pound, twenty pence in one pound is a hundred times that in a hundred pounds, and would be called so much per cent. The same in the common rule of three; they get into the way of stating their questions mechanically; but what the teacher should do, is, instead of saying as 1 yard: 2s., 6d., : : 50 yards to the answer; he should say, if one yard cost 2s., 6d., two yards will cost twice as much; three yards three times; 50 yards 50 times as much, having recourse to the common-sense principle as much as possible.

The following questions, with those at the end of this section, may be useful to the teacher, as bearing upon the economic purposes of life, and will suggest others of a like kind:—

The population of the parish in 1831 was 1,040 at the census of 1841 it had increased 7 per cent., what is it at present?

In the population of the parish, 20 per cent. of them ought to be at school; in this parish, containing 1,040, only 12 per cent. are at school; how many are at school? and how many absent who ought to be there?

The population of the county in 1841 was 355,004;—82.8 per cent. were born in the county, 14.2 in order parts of England, 0.5 in Scotland, and 0.9 in Ireland; what number were born in each country?—how many in number, and what per cent. are unaccounted for?

Give the average of the parish, how many to the square acre; number of the houses, how many to a house, etc. These questions ought also to be the vehicle of a good deal of instruction on the part of the teacher.

A sheet containing the names of the towns in each county, arranged by counties, and giving in a tabular form the population in adjoining column, according to the census of 1831 and of 1841, is to be had for a shilling, and offers great facility to a master for making questions of this kind; as well as affording useful statistical information.

In teaching them superficial and solid measure, the following mode is adopted:—

They are first shown, by means of the black board, what a square inch, foot, yard, etc., is, by proofs which meet the eye; that a square of two inches on a side contains four square inches: of three inches on a side, nine square inches, and so on; or, in other words, that a square of one inch on a side, could be so placed on a square of two inches, as to occupy different ground four times, and in doing this it would have occupied the whole square, one of three inches, nine times: thus showing clearly what is meant by a surface containing a certain number of square feet, etc.

The same illustration with an oblong, say nine inches by two, three, etc., two or three drawings or diagrams of figures so divided are painted on the walls.

VII.

MENSURATION.

The teacher takes a cube of four inches on a side, divided into four slices of one inch thick, and one of the surfaces divided into sixteen superficial inches; to this slice of one inch thick, containing sixteen solid inches, add a second, that will make 32, and so to the fourth, making 64; so that they now have ocular proof so simple, that they must understand: that the superficial inches in a square, or rectangle, is found by multiplying together the number in each side; the contents of a regular cube by multiplying the number of superficial inches on one side by the number of slices.

To apply this:

The master tells one of the boys to take the two-foot rule (a necessary thing in a village school), measure the length and breadth of the school-room. Yes, sir.

Length 26 feet, breadth 16 feet. What is the figure? An oblong

—sides at right angles to each other. Multiply length and breadth —what is the area?

To another—Look at the boards of the floor; are they uniform in width? How are they laid? Parallel to each other. The breadth of the room you have got, and, as the boards are laid that way, you have the length of each board; measure the width of a board. Nine inches. Reckon the number of boards. What is the area of the room? Does it agree with your first measurement? If not, what is the source of error; the boards will turn out to be unequal in width.

The door—what is the shape of the opening? An oblong, with one side a good deal longer than the other. Measure the height—the width: now what number of inches of surface on the door?

The rule again. Measure the thickness. Now how many solid inches?

The door-posts. Measure the height, width; now the depth. How many solid inches of wood in one post? How many in the whole door-posts? How many solid inches in a foot? Turn it into feet.

In the same way they may apply the rule to find out the surface of a table, a sheet of paper, surface of a map, a page of a book, etc., but always making them do the actual measurement, first taking one child, then another.

Again the room—we have got the area—tell us how much water it would hold, if we could fill it as high as the walls; we have got two dimensions, what is wanting?—The ...eight. We cannot reach up, sir.—Take your rule. Measure the thickness of a brick with the mortar.—About four inches... Measure the first three courses. —A foot, sir.—Reckon the courses of the wall.—Thirty-six.—Then the height is what?—Twelve feet. Now find out the solid contents of the room.

Find the surface and solid contents of a brick.

In fact, the two-foot rule is to the village school what Liebig says the balance is to the chemist.

Another practical application, which works well in giving fixed ideas of linear measure, is the following:

Take a hoop, say of two feet diameter; apply a string to the circumference; measure it.—Rather over six feet.—Another of three will be found to be nine, and by a sort of inductive process, you prove that the circumference is three times the diameter; when farther advanced, give them the exact ratio, 3.14159, which they will work from with great facility. That a child should feel and understand this mode of inductive reasoning is very important, and is one of the most useful school-lessons he can have.

Boys! make a mark on the hoop: let it rest on the floor, the mark being directly opposite the point which touches the floor; trundle it, stopping every time when the mark rests upon the floor, and let another boy make a chalk-mark where it touches; now take your *two-foot rule* and measure between each mark. What is it?—: x feet, twelve feet, eighteen feet, etc.—And the hoop has been round how many times at each mark? One at the first, twice at the second, three times at the third, etc.—Now, you see, if you trundle your hoop over a piece of level ground, and reckon the number of times it has gone round, you can tell the length of space it has gone over.

How many miles to Winchester?—Nine, sir.—Measure the height of your father's cart-wheel, and tell him how often it will go round in going to market. Tell him he must not zigzag. The teacher should point out the sources of error. The philosophy of common life and every-day things is most attractive to children, and a book of this kind, if well done, would be a most useful one for our village schools.

This two-foot rule, and other appliances, setting to work both hands and head amuses, at the same time that it instructs, and gives a sort of certainty to their knowledge, and fixes it in a way that learning things by mere rote, never can.

(To be continued.)

Summary of Hints to Teachers.

In our day education has received a prominence among subjects of study and discussion, which in days gone by it had not. To this its value justly entitles it. For the more it advances the more will civilization advance and society improve; the more will the comforts of life be increased and its ills diminished; and the more extended and thorough it becomes,—having the Bible for its basis, —the safer will life and property be, and the more stable and united, in promoting general welfare, will communities become.— Deserves it not, therefore, all the attention it can receive,—all the laudable efforts which may be made for its improvement and extension? And does not every one who heartily cooperates in its