this by directing one of the children to bring *two* pencils, or *two* books, &c., while the others look on observantly, and approve or otherwise, as the case may demand. If the requirement be rightly met, the class may simultaneously describe the objects as they are presented, saying, "Two pencils," "Two slates," "Two books," &c. Here also the objects should be diverse.

With this attainment made, the class may be led on to the observation of the number THREE.

1. The teacher should now add one pencil to the two pencils, one slate to the two slates, or one book to the two books, and, as this is done, require the children to say, in each case, "*Three* pencils," "*Three* slates," "*Three* books, &c. As an exercise, groups of *three* of different objects may be placed before the class, and one of the children desired to bring a similar number of the same object, or of some other. When observation has been well exercised by varied examples of this kind, the children may again be told that such a number of any object whatever is called *three* of it, and that the name of that number is THREE.

2. The teacher should then try to discover how far the children are able to connect the word *three* with the corresponding number, by calling upon several of them in rotation to bring three pencils, or three books, or three pins—to bring three of their companions to the teacher, to hold up three fingers, or to clap their hands three times, &c.

3. The object of the next exercise is to ascertain whether the children can promptly apply the proper name to the number, when presented to them in different objects. The teacher may hold up three fingers, and ask how many are held up, and then take up three pencils, and again ask how many there are, or make three strokes upon the slate, and ask how many such a number of anything is said to be.

It may confirm ideas already gained as to the *succession* of numbers, if the children are required to tell in regular succession those they have acquired, while the succession is *enacted*, as it were, by the teacher. Several sets of objects should be at hand, from each of which the teacher takes first one, then a second, then a third; the children saying, as this is done, "One pencil," "Two pencils," "Three pencils;" "One pin," "Two pins," "Three pins," &c.

This should be followed by an exercise in ascending and descending enumeration; thus:—

"Now, all together say with me, *One, two, three;* and again, *Three, two, one.* And now say the same without me, for I shall be silent."

In these exercises, which will need frequent repetition, great care must be taken not to perplex the children; the perception of number should be permitted to grow upon them almost without their being conscious of the attainment. It should be attained by simple observation, rather than by a process of reasoning, although it is true that at a further stage of the child's education it will be found that all the higher calculations of arithmetical reasoning are, in fact, based upon the knowledge for which it is the aim of these initiatory lessons to prepare.

A right method of carrying out this early instruction in number is so important, that it is thought advisable to introduce in this place the following notes of a lesson actually given by an experienced teacher to a class of very young children, on the development of the number *four*. The lesson was given in the presence of strangers, to whom the teacher gave the following introductory explanation of the plan to be pursued:—

1. I shall exercise the children in the number *three*, to ascertain whether they have a correct idea of it. For example, I will call a child to bring me three pointers from among many; then three bottles, &c. To give the idea of *four*, I will add one pointer to the three pointers, one bottle to the three bottles, &c.

2. To ascertain whether they connect the right idea with the name, I will ask them to bring me four pointers, four bottles, &c.

3. To see if they can apply the names themselves, I will hold up four bottles, four pointers, &c., and require them to tell me how many there are.

Lastly, I will make them go over together in succession, the numbers they have learnt, that they may obtain a clear perception of numeration; as, "One bottle, two bottles," &c.; and after this make them say, "One, two, three, four," several times.

THE LESSON

Teacher. I should like a little child to bring me three bottles' Let Charles bring them.

The child named brought *two*.

T. Is he right? *Several.* No.

T. Who can do it? *Several.* I can.

A little boy rose at the bidding of the teacher, and brought another bottle to her, making up the number three.

T. Now who can bring me three shells? *(pointing to some placed at a little distance.)* *Several.* I can.

T. Let Emma bring them.

The little girl referred to brought the proper number.

T. Now who can bring me three pointers? *A little girl.* I can.

The child rose, and brought the number of pointers required.

T. Has she brought the right number? *All.* Yes.

T. Now some child bring me three stones.

A little girl brought three stones.

The teacher, finding that the children had a correct idea of three, placed before them the same objects in groups of four, and called upon them to repeat after her, "Four pointers."

All. Four pointers.

The words were repeated three or four times.

T. Now say, "Four stones." *All.* Four stones.

The same repetition took place as in the case of the bottles and shells.

The teacher's next point was to ascertain whether, when she used the name FOUR, the children connected the right idea with the name.

T. Who can bring me four pointers? *A little girl.* I can.

The child rose, and brought them to the teacher.

T. How many pointers are there here? *All.* Four.

T. Then did Lizzy bring the right number? *Three or four voices.* Yes.

T. Now I should like to have four bottles.

A little boy rose, and brought *three* to the teacher.

T. Is he right? *Several voices.* No.

T. Who can make the number to be four? *A little boy.* I can.

He then rose, and brought one bottle more.

T. Now, how many bottles are there? *Several voices.* Four.

T. Who can bring me four shells? *A little boy.* I can.

He brought them to the teacher.

T. Is he right? *Many voices.* Yes.

The same thing was repeated in the case of four stones: "One stone, two stones, three stones, four stones;" "One bottle, two bottles, three bottles, four bottles," &c.

The teacher's third point was to find if the children could themselves correctly apply the name. To do this, he called upon them to pick up four shells, four stones, &c., which they did correctly. They then practised numeration up to the point they had reached, to obtain an accurate perception of the *increase* of numbers, saying after the teacher: "One stone, two stones, three stones, four stones;" "One bottle, two bottles, three bottles, four bottles;" "One, two, three, four."

T. Now, Thomas *(addressing one of the children)*, can you bring me four children? four who are sitting up nicely.

The little boy spoken to, rose, selected *three*, and led them to the teacher.

T. Well, Thomas, have you brought four? *Thomas.* Yes.

T. (to all.) Thomas says he has brought four children; are there four here? *Nearly all.* No.

T. Let us count them: one child, two children, three children. Let me have four, Thomas.

He brought another boy, who walked before the rest to take his place by their side.

T. (to all). Should he have gone in front of the other children? *Two or three voices.* No.

T. Certainly not; he should have come round behind them.

The child was then led round, and placed by the side of the three children.

T. Now say, "One child, two children, three children, four children." This was done.

T. Now let three children go to their seats. Now one child.

The children then went to their seats.

T. Who can show me four fingers?

A little boy held up all the fingers and the thumb of both hands.

T (to all). Are there only four there? *Several voices.* No.

T. See what a number of fingers! How many did I ask for? *Several voices.* Four.

The teacher then counted four on her own fingers.

T. Now, Emily, show me four.

The little girl addressed held up that number of fingers.

T. How many does she hold up? Four.

It is unnecessary to pursue these detailed lessons further. In working out the idea of the higher numbers, it is necessary simply to adhere to the plan here recommended, adding one additional marble, pebble, or book, to the group last considered, recognized, and named, the teacher then calling on the class to form successive groups of objects, to the numbers of which the names *four, five, six, seven, eight, nine,* and *ten* are applicable; and then requiring the children themselves to give the proper name, as groups of objects containing such numbers are successively presented to them, concluding the lesson by ascending and descending enumeration.

It must be left to the discretion of the teacher where to put a limit to lessons such as these. "The degree of power in children, and the time of development, are so various that nothing but careful observation can make the teacher aware what time or labor each step will require, before it is thoroughly understood by the pupil." One child will be embarrassed when required to tell the number of ten or twenty objects which lie before him, while another will determine it at a glance. In one of these cases the power of perception needs to be developed by a patiently conducted gradual process; in the other it will steadily acquire increased scope as larger numbers are presented to the child's observation. As a general rule, the number *ten* should be the limit of these initiatory lessons on number for some considerable time.

II.—*The Order of Numbers.*

The object of this lesson is to bring out the relation in which numbers stand to each other when used as ordinals, and when the perception has been awakened, to communicate the name applied to each number when so used. It is manifest that, though closely allied to the abstract value of a number, its power as an ordinal is