"simple units," being to the left of the decimal point; in 49 the 9 expresses "simple units," the decimal point being *understood* at the right of it.

26. We find by the table just given, that, after the first nine numbers, the same digits are constantly repeated, their positions with reference to the decimal point being, however, changed; that is, to indicate succeeding groups, the digit is moved, by means of a cipher, one place farther to the left. Any one of the digits may be used to express its respective number of any of the groups:—thus 8 would be eight "simple units"; 80, eight groups of the first order, or eight "tens" of simple units; 800, eight groups of the second, or units of the third order; and so on. We might use any of the digits with different groups; thus, for example, 5 for groups of the third order, 3 for those of the second, 7 for those of the first, and 8 for the "simple units," then the whole set down in full would be 5000, 300, 70, 8, or, for brevity's sake, 5378. For we *never* use a cipher, when the place it would occupy may be filled up by a digit; and it is evident that in 5378 the 378 keeps the 5 four places from the decimal point (understood), just as well as ciphers would have done; also the 78 keeps the 3 in the third, and the 8 keeps the 7 in the second place.

27. It is important to remember that each digit has two values, an *absolute* and a *relative*. The absolute value is the number of units it expresses, whatever these units may be, and is unchangeable; thus 6 always means six; sometimes, indeed, six tens; at other times six hundreds, &c. The relative value depends on the order of units indicated, and on the nature of the "simple unit."*

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* What has been said on this very important subject is intended principally for the teacher, though an ordinary amount of industry and intelligence will be quite sufficient for the purpose of explaining it, even to a child, particularly if each point is illustrated by an appropriate example; the pupil may be made, for instance, to arrange a number of pebbles in groups, sometimes of one, sometimes of another, and sometimes of several orders, and then be desired to express them by characters—the "unit of comparison" being occasionally changed from individuals, suppose to tens, or hundreds, or to scores, or dozens, &c. Indeed the pupils *must* be well acquainted with these introductory matters, otherwise they will contract the habit of answering without any very definite ideas of many things they may be called upon to explain, and which they cannot be expected *perfectly* to understand. Any trouble bestowed by the teacher at this period will be well repaid by the ease and rapidity with which the learner will afterwards advance. To be assured of this, he has only to recollect that most of his future reasonings will be derived from, and his explanations grounded on the very principles we have endeavoured to unfold. It may be taken as a truth, that what a child learns without understanding, he will acquire with disgust, and will soon cease to remember; for it is with children as with persons of more advanced years—when we appeal successfully to their understandings, the pride and pleasure they feel in the attainment of knowledge, cause the labour and the weariness which it costs to be undervalued or forgotten.

Pebbles will answer well for examples—indeed, their use in computing