

they were the opinions of the scholars of the last century, and are still sometimes met with—not because it is believed by the present writer that any one of them is the true theory.

The latest theory for the origin of our symbols of number and the correct one, it may be, is that *they were originally the initial letters of the Sanskrit numerals*. This theory is confidently declared as proven by the great authority of James Prinsep and Max Müller, both of them profound Sanskrit scholars. These are Max Müller's words: "It is now proved that the Indian figures were originally initial letters of numbers in Sanskrit." Such use was possibly because the initials of all the numerals were different letters. Such use was also likely, as it agrees with the common alphabetic systems in employing letters.

Still more difficult is it to give a satisfactory account of the zero, which stands first in importance although it was the last to appear among the symbols of the Arabic notation. According to the line-theory it was suggested by the completion of the circuit of the fingers. The advocates of the angle theory say it was adopted because it contains no angles. Other conjectures, just as vague and unsatisfactory, have been proposed; but there can not at present be said to be even an approach to a general unanimity of opinion. Says Max Müller in his "Chips from a German Workshop," "It would be highly important to find out at what time the naught occurs for the first time in Indian inscriptions. That inscription would deserve to be preserved among the

most valuable monuments of antiquity, for from it would date in reality the beginning of true mathematical science, impossible without the naught—nay, the beginning of all the exact sciences to which we owe the discoveries of telescopes, steam engines, and electric telegraphs."

The origin and age of the symbols of the Indian numerals has thus been seen to be still under dispute. At first the symbols appear to have been used without place-value and the zero. Like the Indian alphabet they were probably derived from abroad—possibly, as is believed on philological grounds, from Thibet. The Hindoos consider this method of numeration as of Divine origin, "the invention of nine figures with device of place being ascribed to the beneficent Creator of the universe."

Unfortunately, the symbols have changed in form beyond identification. They are not now written as they were in the year 1,000 A. D. Most of the theories given above are little more than guesses, and no guess or discovery of a chance relation or similarity is of the slightest value. The question has been the subject of long and laborious investigations, which have again given rise to several variations of the "Initial theory." The study of the inscriptions and manuscripts by the searching methods of comparative philology leaves us the hope—perhaps not altogether idle—that one day we shall yet be able, with some degree of positiveness and completeness to answer the question, Whence come the Indian numerals?—*The Academy*.

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WHAT one sees for himself in nature's book is his by a right of discovery, as real as though no one else had ever known it; and no knowledge ever has the power of inspiration and development equal to that which the mind derives at first hand.—*Stockwell*.

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FOR the unlearned man knows not what it is to descend into himself, or to call himself to account; nor the pleasure of that most pleasant life, which consists in our daily feeling ourselves to become better.—*Lord Bacon*.