

and curious learning, which it has not been our good fortune to see for years, there is an excellent account of Hindoo algebra, and of the keen analytical ability their work displays, as well as examples of their problems expressed in highly rhetorical and poetical diction, and sometimes so overloaded with ornament (the fault of all their literature as of their act,) as to obscure the simple elements of the problem proposed. The algebra of Bhaskara, shows that he understood the arithmetic of square roots; the solutions of equations of the second degree, even touching upon those of higher denomination in the simplest cases; a general solution of indeterminate problems of the first degree, and a method of getting a multitude of answers to problems of the second degree, when one solution had been found by trial. In the attempt to solve equations of the higher order they stuck hard and fast. But algebra was their pet science and they pegged away at it, never disheartened, and applied it as far as they could to their work in astronomy and geometry.

Bhaskara's great work, however, is a long treatise on arithmetic followed by the elements of Geometry and called the *Silavati*. It begins with an invocation to Ganese, the elephant headed god of wisdom, whose image is always adored before the beginning of a drama, the recitation of a poem, or any literary occasion, and then removed by the Brahmin in charge before the performance begins. The rules of arithmetic are then given in verse and addressed to Lilavati, a charming girl who poses as pupil. The origin of this name for the treatise is an odd and amusing piece of legendary lore. Bhaskara had been disappointed in the ambition of his life, a son to receive his accumulated learning and hand it down to posterity. The next best thing was to secure a suitable marriage for his daughter. But the astrologers announced that her horoscope showed that she must live and die unmarried. On closer examination the father thought he discovered one lucky day and hour when she could be happily married. So picking out the bridegroom, and having him in

attendance at the proper time and place with Lilavati in full bridal dress and the astrologer to watch the heavens and to measure the time, he awaited the event with eagerness. On a deep vessel of water floated the hour-cup, a deep saucer with a small hole in the side at the water line. when that should fill and sink the two were to be joined in marriage. But while waiting it happened that the girl, from a very natural curiosity, looked over the edge of the vessel to see how fast the water was coming in, when a pearl from her dress unseen by any one rolled into the hole and stopped the influx of water. When the operation of the cup had been delayed beyond all reason, the anxious father examined the apparatus, found the cause of the delay and realized that the one favorable hour was long past. "It is well," said the disappointed father, "I shall write a book in your name which shall remain to the latest time; for a good name is a second life and the ground-work of eternal existence."

The whole question of the place of Hindoo mathematicians is one of chronology, and upon the determination of the exact date of Bhaskara depends the assigning of the earlier honors to him or the Europeans. T.

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#### IN MEMORIAM.

At a meeting of the class of '96, of the Pennsylvania State College, the following resolutions were adopted:

WHEREAS, our beloved class mate, Frank J. Bailey, was removed from our number by an all wise and overruling Providence, be it

*Resolved*, that in the death of Mr. Bailey, our class loses a loyal and honored member, and we a highly esteemed friend; and

*Resolved*, that we extend to the bereaved family, our heartfelt sympathy for them in their affliction; and

*Resolved*, that a copy of these resolutions be sent to the bereaved parents, published in the *FREE LANCE*, and entered on our class minutes.

Committee, { F. W. JESSOP,  
C. S. GINGRICH,  
W. E. SNYDER.

State College, Pa., Feb. 13, '94.

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