miliar with these units is affirmed; but in these two pages a clear understanding of them is made well-nigh impossible. A single illustration will serve to show the character of many of these definitions.

"*The unit of tension* is that tension (potential difference) between two points which requires the expenditure of one unit of force (1 dyne) to move 1 coulomb from one point to the other by overcoming the electrical repulsion $\left(\text{Dim. } C^{\frac{3}{2}}G^{\frac{1}{2}}S^{-2}\right)$.

"*Technical unit*, 1 volt $= 10^8$ (C. G. S.) units."

BARNARD'S PYRAMID OF GIZEH.

Dr. Barnard tells us that Mr. Flinders Petrie, after having published a book in 1874 to give 'irrefragable proof' of the supernatural metrology of the Great pyramid, in 1880 printed another in which he recants all that doctrine. This surprising instance teaches us that it is possible for a man to hold the views of John Taylor and Piazzi Smyth, and yet be capable of using his mind sanely upon the subject. But Mr. Petrie had shown himself by his 'Inductive metrology' to be an adept in the logic of induction; and surely one would expect the study of logic, if it be of any use at all, to save a man from such follies as this metrological theory of the pyramid.

The main fallacy of the advocates of it is one which has been pointed out in C. S. Peirce's 'Theory of probable inference' as a violation of the inductive rule that the characters for which a lot is sampled ought to be predesignate; that is, settled upon before the examination of the sample. Given a collection of numerical data, it is always possible, by twisting them about, to find some recondite and curious relationship between them; for the possibilities of such relationships are endless. Mr. Pliny Earle Chase has convinced the world of that, if of nothing else.

Another thing which the pyramid-bitten seem to overlook, is that an hypothesis antecedently likely does not mean one which they are antecedently inclined to like, but one which belongs to a class of explanations among which the balance of positive evidence tends to show that the true theory is to be looked for.

Dr. Barnard treats the subject with a great deal of pertinent wit; he has drawn from the stores of his learning for interesting information on every page; and, what is best, he has estimated the strength of each argument with unerring good sense. Perhaps he is a little too indulgent to the idea that the vertical height of the pyramid was intended to bear the same ratio to the perimeter of the base that the radius of a circle bears to its diameter. Fourteen centuries after the building of the Great pyramid under King Apophis of the seventeenth dynasty (Joseph's Pharaoh, as it is said), was written the mathematical treatise of Ahmes, which has been preserved to us. This work virtually assumes

$$\pi = (\tfrac{4}{3})^4 = 3.16,$$

and there is no good reason for supposing that the pyramid-builder knew better. On the contrary, Sir Henry James's idea is probably correct, that the rule for the slope was, that at the corners the rise should be nine on a base of ten.

The supposition that the inclination of the entrance-passage was connected with a pole-star, derives, it would appear, its chief strength from its forming a part of Mr. Procter's ingenious theory of the orientation of the pyramid, which certainly has much to recommend it; yet the accuracy of orientation may be merely accidental, like that of the District of Columbia.

The imaginary metrological system of the Great pyramid of Gizeh. By F. A. P. Barnard. New York, *Wiley*, 1884. 5+106 p. 8°.

NOTES AND NEWS.

Mr. H. H. Warner of Rochester, N.Y., offers two prizes for the year 1885. First, two hundred dollars for each and every discovery of a new comet made from Feb. 1, 1885, to Feb. 1, 1886, subject to the following conditions: 1. It must be discovered in the United States, Canada, Mexico, West Indies, South America, Great Britain, or the Australian continent and islands, either by the naked eye or telescope, and it must be unexpected, except as to the comet of 1815, which is expected to re-appear this year or next; 2. The discoverer must send a prepaid telegram immediately to Dr. Lewis Swift, director, Warner observatory, Rochester, N.Y., giving the time of the discovery, the position and direction of motion, with sufficient exactness, if possible, to enable at least one other observer to find it; 3. This intelligence must *not be communicated to any other party or parties*, either by letter, telegraph, or otherwise, until such time as a telegraphic acknowledgment has been received by the discoverer from Dr. Swift (great care should be observed regarding this condition, as it is essential to the proper transmission of the discovery, with the name of the discoverer, to the various parts of the world, which will be immediately made by Dr. Swift). Discoverers in Great Britain, the Australian continent and islands, West Indies, and South America, are absolved from the restriction in conditions 2 and 3. Second, a prize of two hundred dollars in gold to