general criteria, for Pringsheim shows that for every Σa_ν, *practical* criteria of the first and second kind do exist; but his proof of this fact yields no method of finding them, except when he knows beforehand the very thing to be determined, namely, whether Σa_ν be convergent or not!

In addition to the criteria of the first kind and second kind, Pringsheim establishes an entirely new criterion of a *third kind* and also *generalized criteria of the second kind*, which apply, however, only to series with never increasing terms. Those of the third kind rest mainly upon the consideration of the limit of the difference, either of consecutive terms or of their reciprocals. In the generalized criteria of the second kind he does not consider the ratio $\frac{a_{\nu+1}}{a_\nu}$ of two consecutive terms, but the ratio of any two terms, however far apart, and deduces, among others, two criteria previously given by Kohn * and Ermakoff, † respectively.

COLORADO COLLEGE, *April* 12, 1892.

NOTE ON AN ERROR IN BALL'S HISTORY OF MATHEMATICS.

BY DR. ARTEMAS MARTIN.

I DESIRE to call attention to what seems to me to be an error in Ball's "Short History of Mathematics," page 102, concluding clause of last paragraph, where the author ascribes to Diophantus the statement "that the sum of three square integers can never be expressed as the sum of two squares."

That the above statement is not in accordance with the facts is evident, since

$$(q^2+r^2-s^2-u^2)^2+(2qu)^2+(2ru)^2=(q^2+r^2-s^2+u^2)^2+(2su)^2$$

identically, no matter what values be assigned to q, r, s, u.

If we take $q=1$, $r=2$, $s=3$, $u=4$, then, after dividing all the numbers by 4^2, we have

$$2^2+4^2+5^2=3^2+6^2=45.$$

Let $q=1$, $r=2$, $s=4$, $u=3$, and we find, after dividing by 2^2,

$$3^2+6^2+10^2=1^2+12^2=145, =8^2+9^2.$$

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* *Grunert's Archiv*, vol. 67, pp. 63–95.
† *Darboux's Bulletin*, vol. 2, p. 250; vol. 17, p. 142.