

**DODGSON'S THEOREM** *If there are  $m$  equations, containing  $n$  variables ( $n \geq m$ ), and if there are among them  $r$  equations which have a nonvanishing order  $r$  determinant of their unaugmented matrix; and if when these  $r$  equations are taken along with each of the remaining equations successively, each set of  $r + 1$  equations has every order  $r + 1$  determinant of its augmented matrix equal to zero, then the equations are consistent. If any nonvanishing order  $r$  determinant of the system of  $r$  equations is selected, then the  $n - r$  variables whose coefficients are not contained in it may have arbitrary values assigned to them. For each such set of arbitrary values, there is only one set of values for the other variables, and the remaining equations are dependent on these  $r$  equations.<sup>67</sup>*