

11. *a.* Six parallelograms, whose diagonals intersect at M are $HOUO'$, $KOVO'$, $LOWO'$; $HKUV$, $KLVW$, $LHWU$.
b. Six parallelograms whose diagonals intersect at J are $HIUI'$, $KIVI'$, $LIWI'$; $HKUV$, $KLVW$, $LHWU$.
c. Six parallelograms whose diagonals intersect at J_1 are HI_1UI_1' , KI_1VI_1' , LI_1WI_1' ; $HKUV$, $KLVW$, $LHWU$.
12. *a.* $HWKULV$ is a hexagon whose opposite sides are parallel, and respectively $= \frac{1}{2}O'A$, $\frac{1}{2}O'B$, $\frac{1}{2}O'C$.
b. $HWKULV$ is a hexagon whose opposite sides are parallel, and respectively $= \frac{1}{2}I'A$, $\frac{1}{2}I'B$, $\frac{1}{2}I'C$.
c. $HWKULV$ is a hexagon whose opposite sides are parallel, and respectively $= \frac{1}{2}I_1'A$, $\frac{1}{2}I_1'B$, $\frac{1}{2}I_1'C$.
13. *a.* AO' , BO' , CO' pass through the points where the circumscribed circle of $\triangle HKL$ cuts the sides of $\triangle ABC$.
b. AI' , BI' , CI' pass through the points where the inscribed circle of $\triangle HKL$ touches the sides of $\triangle HKL$.
c. AI_1' , BI_1' , CI_1' pass through the points where the first escribed circle of $\triangle HKL$ touches the sides of $\triangle HKL$.

On Determinants with p -termed elements.

By THOMAS MUIR, M.A., F.R.S.E.

This paper will be found in the *Messenger of Mathematics* for January 1884, Vol. xiii, New Series.

Construction for Euclid II. 9, 10.

By R. W. M'ARTHUR.

Take line AB divided in C and D as in Euclid. On AD describe the rectangle $AEFD$ having AE , DF each equal to AC or CB . According as D is in AB , or in AB produced, from DF or DF produced cut off FG equal to DB ; and join CG , GE , EC .

Mr JAMES TAYLOR gave a proof of the known theorem:—"If two sides of a skew quadrilateral $ABDC$ inscribed in a circle be produced to meet in E , and FEG be drawn perpendicular to the diameter passing through E , the two other sides produced make equal intercepts on FEG ." Mr Taylor's object was to call attention to the desirability of obtaining a simpler mode of demonstration.