square E F G H. If the initial difference of phase be
two, three, or four twentieths of the period, it will be
seen, by following out the movement in the same way,
that more and more open ellipses will come to be
described as represented in the figure; and that, when
this difference amounts to five twentieths or a quarter
undulation, the movement will be circular in the direc-
tion *p* P *q* Q, or of the arrow marked thus +. The
difference of phases still continuing to increase, this
will again degenerate into an ellipse by a continued
elongation in the direction H F, and contraction in
the direction E G, till it passes at length, after another
quarter-undulation of phase-difference, into the straight
line H F. The circulation in all, however, being in the
same direction, or +. On the other hand, if instead of
supposing the vibration *a b* to be initially *in advance* of
A B by one-twentieth, we suppose it to be so much *in
arrear*, we shall have the same ellipse *n* E *m* described
as in the former case, but in the opposite direction, that
of the arrow marked —, as will be easily seen by going
through the successive steps of our reasoning: and so
for all the rest; so that in the case of a circular revolu-
tion, the direction of the rotation will be one way or the
other, according as the vibration *a c* is a quarter-undu-
lation in advance or in arrear, in respect of phase, of A C.

(152.) This, then, is what is meant by circular and
elliptic polarization. It is easy to extend the reasoning
above stated to cases in which the component vibrations
are of unequal intensity (or extent of excursion), and
make other than a right-angle with each other's direc-