like manner, the visual ray throughout its whole extent
is inclined to the axis in a plane at right angles to that
of the primitive polarization. The light, therefore, in-
cident in this plane through the first tourmaline will
pass wholly into the extraordinary pencil, and will there-
fore emerge polarized in a plane *at right angles* to the
(now) *horizontal* section of the crystal containing its axis
in which its direction lies, *i.e.*, again, in a *vertical* plane,
and will be stopped, for the same reason, by the second
tourmaline; so that this arm of the cross also will be
black in the horizontal, and white in the vertical, posi-
tion of the analyzer. Let us now consider a ray inci-
dent in a plane 45° inclined to the vertical, or in a plane
intermediate between the arms of the cross (the axis of
the crystal being in all cases supposed held horizontally).
The incident ray then will fall on the crystal in a sec-
tion through its axis 45° inclined to that of its primitive
polarization, and will therefore be equally divided be-
tween the ordinary and extraordinary pencils. These
portions will emerge parallel, and of equal intensity,
though differing in phase by such a number of undula-
tions, and parts of an undulation, as the latter, by
reason of its greater velocity, has gained on the former.
In this state they are both incident on the second tour-
maline, having its axis 45° inclined to both their planes
of polarization, which therefore will subdivide each of
them into two equal portions oppositely polarized, *sup-
pressing or absorbing one, and allowing the other to pass*,
and the transmitted portions, being of equal intensity,
similarly polarized (viz., both in the plane of the axis of