

ing off at the borders by insensible though rapid degrees. Within this "polarized field," a vast variety of brilliant and beautiful optical phænomena, hereafter to be described, are very conveniently and elegantly exhibited. One effect is very striking. If instead of a black velvet backing, the glasses be laid on any bright surface, the printed page of a book, for instance—this, which, without the interposition of the tourmaline, cannot be discerned for the glare of light reflected from the glasses, becomes distinctly visible, and may be read with facility when that glare is taken off in the manner described. So, too, by looking through a tourmaline plate held transversely, on the surface of a pond, at the polarizing angle; the reflected light from the surface being destroyed, the objects at the bottom, the fishes, &c., are distinctly seen, though completely invisible to a bystander. So, too, by polarizing alternately in a vertical and a horizontal plane, the light of one or more lamps, night signals may be made, and a message transmitted, visible *and interpretable as signals*, to a distant spectator provided with a tourmaline plate, while a bystander not so provided, though he see the lamps, will have no suspicion that any such communication is in progress.*

(138.) *Polarization of the sky light.*—The light of a clear and *perfectly* cloudless blue sky is partially polarized in a plane passing through the sun, the eye, and the point of the sky examined. At each point in that great circle of

* I mention this to prevent a patent being hereafter taken out "for secret communication at a distance by means of polarized light."