

validity, and the soundness of the theory it relies on, by experiment. There can be no better presumptive evidence of the truth of a physical theory than its enabling us to predict, antecedent to trial, a result in direct contradiction to what mankind in general would consider as the obvious conclusion of common sense founded on all *ordinary* experience. This is the case in the present instance. Since the total illumination of one point P on the screen is only that due to the undulations which remain outstanding after the mutual destruction of by far the greater proportion of those propagated from the zones (A), (C), (E), &c., (the *odd* zones, reckoning (A) as No. 1), by those emanating from the even ones (B), (D), (F), &c., it follows that if all the even zones could be entirely suppressed or rendered ineffective, the illumination at P wou'd be prodigiously increased, and that even the obliteration of a few of them would produce a very material augmentation of brightness at that point. In other words, that by *stopping out* a large proportion of the luminous rays passing through a circular aperture from a bright illuminating point, the illumination of the central point of the image of such aperture thrown on a screen at a certain distance behind it, may be made to *exceed by many times what it would be were the whole aperture left open*. This strangely paradoxical result is stated by M. Billet* to have been experiment-

* Billet, *Traité d'optique Physique*, 1858, ii. § 55, by far the fullest *résumé* of that subject hitherto published; only too little explanatory, and sadly deficient in facility of reference. It deserves a good index.