12 " Experiments on Light." By Henry Fox Talbot, Esq., M.P., F.R.S.

In the first section of this paper, an account is given of certain appearances presented by transparent objects, and especially saline crystals, viewed through a microscope, when illuminated by polarized light. For this purpose, the first polarizing medium, consisting of the arrangement of single-image calcareous spar, invented by Mr. Nichol, is fixed beneath the stage of the microscope ; and the second, which is similar to it, is interposed between the eye-glass and the eye, and is capable of being turned on its axis, so as either to allow of the transmission of the whole of the light polarized by the first medium, or to intercept the whole of it, according as its position is similar, or at right angles to the former. In the latter case, any substance which has the property of depolarizing the light transmitted to it by the first medium, will appear luminous, while the rest of the field of view is quite dark, and will exhibit the most brilliant colours, dependent on its thickness and position ; so that if the stage of the microscope be turned round, the colour of each crystal is seen to change, and gradually to assume the complementary tint. Other variations in the appearances are produced by interposing a plate of mica, which gives a general tint to the whole field of view, and modifies the colours of the objects viewed ; and also by turning the polarizing eye-piece, so that the whole of the polarized light is transmitted ; when crystals, which would be white if viewed by ordinary light, may be made to assume various colours, and even sometimes to appear perfectly opaque ; a result which does not seem to be in accordance with that which theory would lead us to expect.

The second section is occupied with the development of a principle which the author conceives is extensively applicable to the purposes of photometry, or the accurate measurement of the intensity of light. It is founded on the well-known experiment of the appearance of a uniform grey tint presented by a circle, partly white and partly black, when made to revolve rapidly ; the intensity of the light being regulated by the proportional spaces occupied by each colour. Several variations of this experiment are described, with a view to its practical application to the proposed object. The author also suggests the employment of methods founded on a similar principle to the measurement of quantities in various other branches of physical science ; for example, that of high temperatures.

13. " On the Mummy Cloth of Egypt ; with Observations on the Manufactures of the Ancients." By James Thomson, Esq., F.R.S. Communicated by Dr. Roget, Sec. R.S.

By subjecting the threads of various specimens of cloth, enveloping Egyptian mummies, to accurate microscopic examination, which was done at the request of the author by Mr. Bauer, it was ascertained that they were formed exclusively of the fibres of linen, and not of cotton, as had been supposed ; a conclusion which is corroborated by other considerations stated by the author. The paper is accompanied by drawings, exhibiting the appearances of the threads both of cotton

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