

greatly add to the interest excited; it would assist people to understand what they see, and tend to the destruction of that languid curiosity so painfully evident in the faces of sightseers. The contents of one case would serve for one or two lectures, and those who listened would necessarily carry away a few new ideas.

We have been viewing the question solely from its popular side, being convinced that it is of great importance; other plans may occur to the reader, and may be well worthy of ventilation.

HENRY ULLYETT

### Colour

SINCE the publication in NATURE of my paper on "Colour," I have received several inquiries for references on the subject. These I should have given at the time, only that I wrote away from books; perhaps on the principle of "better late than never," the publication in NATURE of the following selection may save trouble to some interested in the matter.

Helmholtz: "Ueber die Theorie der zusammengesetzten Farben;" "Poggendorff's Annalen," lxxxvii. p. 45; "Philos. Magazine," (4) iv. p. 519.

Maxwell: "Experiments on Colour perceived by the Eye, with Remarks on Colour Blindness;" "Edinburgh Transactions," xxi. p. 275.

Maxwell: "On the Theory of Compound Colours, and the Relations of the Colours of the Spectrum;" "Phil. Trans.," 1860.

Maxwell: "Account of Experiments on the Perception of Colour;" "Phil. Mag.," (4), xiv. p. 40.

Müller: "Zur Theorie der Farben;" "Pogg. Ann." vol. 139, p. 411.

These are the principal original memoirs. Of books on colour there are very few that can be trusted. Benson's "Principles of the Science of Colour" is recommended by Prof. Maxwell. There is also a tolerably complete exposition of the subject in Helmholtz's "Physiologische Optik," of which excellent work a French translation has, I believe, been published.

Have any of the readers of NATURE tried a double image prism for exhibiting the mixtures of two colours? By the aid of a Nicol the proportions of the components may be varied at pleasure, and the combination is, in my experience, more effective than the plate of glass referred to in the books. However, on account of the texture of the coloured papers or wafers, the mixture is not so perfect as that obtained by rotation.

J. W. STRUTT

### A Hint to the Longsighted

A SMALL optical expedient which has been of service to me may be new to some of your readers, and useful, on occasion, to those among them whose sight is as long as my own. The focal length of the convex lens I require for my right eye in reading is twelve inches, and I find that by holding a lens of 30-inch focus about a foot from this eye I am enabled to see distant objects not only with singular distinctness, but also perceptibly magnified. I can read moderate-sized print at the distance of twelve feet, and make out the details of a church tower half a mile off nearly as well as with a small opera glass magnifying two and a half times. The greater the distance of the lens from the eye the greater is the magnifying power; but beyond a certain point (depending on the focus of the lens and the distance of the object) the gain is more than neutralised by the loss of distinctness with eyes that deviate but slightly from the normal standard, the lens employed must be so weak that the gain is inappreciable.

I presume that a lens thus held at a distance from the eye, like the German "Stöpfel Linse" described by Sir John Herschel, "realises the notion of Descartes as to the mode of action of a telescope, which he regarded as an enlargement or prolongation of the eye. For the natural cornea we substitute an artificial one, which is more remote from the retina, and so forms there a larger image."

W. T. RADFORD

### Lignite and Selenite

WILL you kindly allow me to inquire whether any of your readers can inform me if there exists any connection between lignite and selenite when found together, and, if so, in what way the lignite assists in the formation of the crystals of calcium sulphate.

I have recently found selenite in three or four different places, and in each case associated with lignite, viz., in the Bracklesham Beds near Stubbington, in the Woolwich Beds at Dulwich, and in ochrey clay near Lewisham Chalk Pits.

June 19

AN AMATEUR

### Arctic Auroras

IN answer to your inquiry, I send you the following information on a Northern Light observed at Kooltook, S.W. end of the Baikal Lake, by Dr. Dyhoffsky. It is taken from a source doubtless not at your disposition (Bulletin of the Siberian section of the Geographical Society, 1871, No. 2):—

"On October 24 (1870) evening a northern light was observed at Kooltook. It began at 9 P.M. with a red light, which appeared more and more distinctly from behind the mountains that border the landscape on the north. It was a little towards the east from the magnetic meridian. This light now increased in the form of a column, now diminished, and at times seemed to vanish entirely. After nearly an hour of such waverings, the light gradually began to increase and get broader; at midnight it reached its utmost intensity and development.

"Its least limits on the horizon were included between N. 59° E. and N. 45° W. Six columns were distinctly visible at midnight, reaching half the distance between the horizon and the zenith, the middle column was the brightest and highest, but at the same time the narrowest, and bordered with reddish-yellow. The other columns were less brilliant but far broader. When the middle column decreased, the western one began to increase, though it never reached the intensity of the middle column. The other columns also increased and diminished by turns; then the phenomenon gradually faded away, and at three o'clock there remained but a ruddy light, which now, as at the beginning, was brighter towards the east of the meridian."

The same aurora was observed at different localities of Europe.

P. KROPOTKINE

Catherine Channel, Petersburg, May  $\frac{1}{2}$ , 1871

### Day Auroras in the Arctic Regions

I CAN now answer Dr. Burder's question regarding the appearance of the Aurora Borealis in the Arctic Regions. The other evening (last Thursday) I had a conversation with a distinguished magnetician and Arctic explorer, and he informed me that he has often seen the Aurora in broad daylight in those regions, the colour invariably being crimson. This, I hope, will once for all settle the apparently vexed question (*pace* Dr. Burder) of "alleged" daylight Auroras. Not to repeat the entire "crusher" of Dr. Burder's, I think many will now discard as "unworthy of serious criticism" his cirrus-cloudy arguments. He must pardon me for being so unceremonious, and remember his own interesting way of confuting—or, better, his attempt.

JOHN JEREMIAH

### SCIENCE IN PLAIN ENGLISH

#### I.

IN tracing the development of public opinion, no period is more instructive than the last three hundred years; and at present the review is particularly important, for we seem to be in a position analogous to the state of Europe just before the Revival of Classical Learning. We are evidently on the eve of great changes in principle, and one vital question is to consider the value of classical culture as compared with the study of science.

The distinctive work of the thirty years (1820-1850) was to "diffuse useful knowledge" among the middle classes. Beside the establishment of mechanics' institutions throughout the country, the London University was founded in 1828; and the British Association for the Advancement of Science held its first annual meeting at York on September 27, 1831, under the presidency of Earl Fitzwilliam.

Another agency has been brought into action, more especially directed to the practical arts, and bringing into friendly competition the various nations of Europe. The International Exhibition of 1851 had a remarkable in-