unknown, but the very existence of this unknown has hitherto been questioned. That when it is known this force shall be acknowledged to be a spiritual one is repugnant to all philosophy, and Serjeant Cox's haste to name it "psychic" is neither wise nor politic. Things spiritual have been materialised in the grossest manner by so-called spiritualists until the word has lost its meaning, and come to signify merely a cause unknown of phenomena sensual to the last degree. So it will be with "psychic" unless some one in authority stop this misuse of it at the very beginning.

GEORGE FRASER

Height of Auroras

I SAW the aurora of Sept. 3, 1870, described by H. C. Key on p. 121, and I observed it from 10 to 11 P.M., but here it never reached quite to the zenith, and at 11.2 P.M. was no where high. Its brightest feature was then a distinct arch, the apex of whose central line was 12° in altitude. If Mr. Key's description of the clear space of 7° or 8° below the aurora in the S.S.E., applies to that time, it would seem that the part of the aurora bordering the clear space cannot have been more than 25 miles above the earth, and was more likely only 17 or 18 miles.

It would be well if the heights of auroras were better known than they are; and I think if systematic observations were made simultaneously at different stations, our knowledge on the subject would be largely increased. I am willing to be one of the observers in such an investigation, and Mr. G. J. Symons, the editor of the *Meteorological Magazine*, has expressed his readiness to aid.

T. W. BACKHOUSE

Sunderland, July 22

Daylight Auroras

ON Sunday, the 23rd July, at 7.40 P.M., there was visible from Blackpool a phenomenon which might readily be mistaken for a daylight manifestation of the Aurora. The phenomenon in question consisted of a number of parallel streamers of light rising vertically and situated from the observer in a north-westerly direction. That portion of the sky occupied by these streamers would be about twenty-five degrees square, its lowest portion being about fifteen degrees above the horizon. At the time of the appearance the sun was obscured by a small but very dense cloud. Large masses of nimbus clouds occupied almost the whole of the north-western, northern, and north-eastern portion of the sky, whilst a few cumulus and cirro-cumulus clouds were visible in the eastern and southern parts of the heavens; one-twentieth part perhaps of the whole sky being apparently free from cloud. The streamers, which, like those of the Aurora, were intermittent in intensity, contrasted greatly in direction with any proximate beams of the sun. The whole thing, however, I am strongly of opinion, was nothing more than a meteorological phenomenon of a very different nature from the Aurora; in short, I believe it was an unusual appearance attendant on a distant and somewhat singularly circumstanced rainfall. Immediately above the uppermost boundary of the space occupied by the streamers there was a large nimbus cloud entirely obscured from the sun's direct rays, whilst that part of the sky occupied by the streamers themselves was in a strong sunshine. The whole phenomenon lasted about half an hour, and my opinion that it was but an unusual aspect of a distant rainfall was strengthened by the fact of a heavy shower of rain descending immediately after the disappearance of the streamers, the upper-current of the air being from the west by north. The rain-fall lasted about a quarter of an hour, and was accompanied by a double rainbow. When it had ceased that portion of the sky previously occupied by the streamers and almost half the remainder contained no visible trace of cloud.

This is the first instance in which I have seen what might be mistaken for a daylight manifestation of the Aurora. The streamers were so like those of the northern light, and the nature of the appearance nevertheless so obviously connected with a transient condition of the atmosphere, that I am very much tempted to doubt the visibility at any time of genuine Aurora by daylight.

D. WINSTANLEY

Manchester, July 24

Spectrum of the Aurora

HAVING noticed that Prof. Zöllner observed a *red line* in the spectrum of the aurora on October 25, 1870, and as it appears this was the first time the *red line* had been observed in Europe,

I am induced to send you the following extract from a short paper read by me April 12, 1870, before the Royal Society of Victoria, on the great aurora of April 5, 1870:—

"The spectrum of the aurora was obtained with one of Mr. Browning's micro-spectroscopes. When the spectroscope was directed to the red streamers, a red line, more refrangible than C (hydrogen line), a greenish line about the position of the green calcium lines, and an indistinct band more refrangible still, which appeared as if resolvable into lines, were observed. When the spectroscope was directed to the green auroral arch, the red line disappeared, and only green ones remained; the rapid disappearance of the red line as the slit passed across the boundary between the base of the streamers and the green arch, was remarkable."

In this aurora there was the usual auroral cloud-like bank on the horizon (sea-horizon) surmounted by an arch of bright greenish light to an altitude of nearly 20° , terminating with a very defined margin, from which the red streamers sprung upwards as if from behind a screen, which shed enough light at midnight to read a newspaper by. This aurora was ushered in by great magnetic disturbances for days previously, which culminated about the time of the brightest display.

ROBERT J. ELLERY

Melbourne Observatory, May 19

Sparrow Cages

A PARAGRAPH in NATURE speaks of the export of sparrows to America. Such long low cages as are described at page 245, covered with canvas, may be seen at Leadenhall Market, in which very many thousands of Egyptian quails are brought to London alive and, I am told, disposed of as larks; of course not for the voice.

A. H.

July 27

BOOKS RECEIVED

ENGLISH.—Taine on Intelligence, part II.; translated by T. D. Haye (L. Reeve and Co.).—A Treatise on Terrestrial Magnetism (Blackwood).—Text-books of Science: Elements of Geometry: J. Watson (Longmans).—Domestic Botany: John Smith (L. Reeve and Co.).—Lighthouse Illumination: T. Stevenson, second edition: (A. and C. Black.)

PAMPHLETS RECEIVED.

ENGLISH.—On the Dermal and Visceral Structures of the Kagu, Sunbittern, and Boatbill: Dr. Murie.—Researches on the Anatomy of the Pinipedia, part I.: Dr. Murie. Poisoning and Pilfering, Wholesale and Retail.—Journal of the Anthropological Institute, part I. March and April, 1871.—Transactions of the Manchester Geological Society, vols. 9—10.—Report of the Meteorological Committee of the Royal Society.—Journal of the Statistical Society, June.

AMERICAN.—On the Secular Perturbations of the Planets: A. Hall.—On the Application of Photography to the Determination of Astronomical Data A. Hall.—Equatorial Observations made at the U. S. National Observatory, Washington: A. Hall.—The School Laboratory of Physical Science, part II.: Prof. G. Hinrichs.

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