

Letters to the Editor.

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The Colour of the Peacock's 'Eye.'

IN NATURE of May 26 I gave an account of the effect of ultra-violet radiation on the colours of the peacock's 'eye.' During the last month of sunny weather I have had a specimen in part exposed under quartz to full sunshine—in part screened. There is a definite effect, though much less marked than can be obtained by a few hours' exposure close to the quartz mercury lamp.

The effect is best seen using a glass mercury lamp as illuminant, with an angle of incidence of about 20° from the normal.

We then see that the dark colour of the 1st zone (centre) is completely discharged, while the 2nd zone shows blue on the exposed and green on the unexposed part.

Detailed examination of the colour changes under ultra-violet light and under sunshine has not yet been made.

Mr. F. Finn (NATURE, July 14) sees reason to think that the older museum specimens of peacocks show a perceptible colour change due to light. This is in accordance with the present observations.

RAYLEIGH.

Terling Place,
Chelmsford, Essex,
July 23.

The Constitution of Germanium.

MASS-SPECTRA of germanium were first photographed five years ago by the method of accelerated anode rays. The effects then obtained were feeble, but sufficient to enable identification of its three principal isotopes, 70, 72, 74. Recently, thanks to the kindness of Prof. Dennis, of Cornell, I have been provided with some volatile compounds of this element suitable for use in the ordinary discharge tube, which so far is the only source giving beams of sufficient intensity for use with my new instrument.

Germanium tetraethyl was the first compound tried, and after one failure a better setting of the discharge tube was obtained, and the three expected lines appeared very clearly together with no less than five fainter new ones. This is the first success with a volatile metallic ethyl compound. This result was repeated, and afterwards similar results were obtained with the gaseous fluoride GeF_4 . The spectra indicate that germanium has eight isotopes, 70 (c), 71 (g), 72 (b), 73 (d), 74 (a), 75 (e), 76 (f), 77 (h). The letter in brackets indicates the order of intensity. It seems very unlikely that any of these lines are due to hydrogen compounds, but the possibility cannot be entirely ruled out. Also the order of intensity is in doubt in the case of Ge^{76} , owing to the possibility of this being enhanced by the line of a compound (probably CS_2) often appearing faintly in the normal discharge. It will be noted that of all these mass numbers two only, 72, 73, are peculiar to germanium; the others all form isobaric pairs with the neighbouring elements zinc, gallium, arsenic, and selenium.

I should like to take this opportunity to point out an unfortunate printer's error in the table of atoms

No. 3066, Vol. 122]

and packing fractions published in my Bakerian Lecture, and repeated in NATURE of Dec. 31, 1927. Mass number 81 belongs to bromine, not to krypton. Kr^{81} is a misprint for Br^{81} .

F. W. ASTON.
Cavendish Laboratory,
Cambridge, July 21.

The Auroral Display of July 7.

A VERY unusual auroral display was observed from our north woods camp on Big Sauble Point on the eastern shore of Lake Michigan at 9.45 p.m. Central Standard Time, July 7.

At this time Vega has not quite reached the zenith and showed but faintly, so intense was the aurora. It radiated from a point about 8° south-west of Vega, which persisted for many minutes as an intense circular or oblong patch, presumably a streamer seen end-on. Radiating from this nearly to the horizon in all directions were other streamers, especially brilliant to the north-east. The dominant colour in the initial ten minutes was that of 5577·35 Å., ascribed to oxygen in recent years. Later, the pink colour due to the nitrogen band systems was vivid enough in spots to suggest distant fires in the forest.

The brilliance of the display may be judged from the fact that it was possible to observe the motion of the second hand of a wrist watch and note the 5 s. division marks on the dial, and, as remarked above, only stars of mag. 0-mag. 1 were to be seen through it.

The entire absence of the characteristic arch (perhaps because it was directly overhead), combined with the aspect of streamers from directly below, is very rare at such southerly latitudes, 43° N., approximately. On the only other occasion on which we have witnessed a display similar to this, the general meteorological conditions were so unusual and so identical that we must needs mention them, although one would not expect any connexion between surface meteorology and the aurora, except the clearness that makes for visibility.

Both the displays mentioned have been associated with fog and high and steady wind. Over-water visibility here on the afternoon of July 7 was less than a mile and a half, and the evening was distinctly thick. The barometer was 29·1 in. and the temperature at the time of the observations 78° F., which is almost record temperature for this location. Indeed, were it not for the brilliance of the aurora on these occasions, one would attribute the low visibility of the brightest stars to fog and cloud.

The normal auroral displays are quite common here in clear cool autumn weather, but the association of two midsummer low latitude appearances with high temperature, humidity, and fog is so striking that we should appreciate any comment others may have about this, either through your columns or in correspondence.

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My "Structure and Development of the 'Living Matter,'" reviewed in NATURE of April 21, p. 610, discusses also the origin and fate of some components of animal and vegetable cells. Important new observations at variance with former interpretations based on Meves's work on the spermatogenesis of the guinea-pig, make a revision of the chapters on spermatid organisation indispensable. But Prof. Gatenby's paper on the Golgi apparatus and acrosome development require in their turn a revision, and this was given in "Living Matter." As its reviewer, Prof. Gatenby objects to several points referring to