

### Separation of Isotopic Ions.

IN the issue of NATURE for June 2, p. 763, there is a reference to a paper by Kendall and Crittenden (Washington: National Academy of Sciences, vol. 9, No. 3) which describes a method for separating isotopic ions. This method was first described by Prof. F. A. Lindemann at the Royal Society conference on isotopes (March 1921). A considerable number of experiments on this subject have been carried out here during the past year, but it seemed desirable to postpone publication until a definite result had been achieved.

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June 5.

### Haze on Derby Day—June 6.

THERE was a dense haze overlying Southern England on June 6, becoming worse towards evening and greatly interfering with visibility. It was very marked in Surrey in the neighbourhood of Epsom, where the race-goers found it difficult to see clearly. Records of this haze taken with my dust-counter at Cheam, between 7 and 7.30 P.M., gave a greyish deposit of dust particles upon the cover-glass. These particles varied in diameter from  $1\frac{1}{2}$  microns down to ultra-microscopic size; the average diameter was about  $\frac{1}{2}$  micron. Most of them were irregular in shape and insoluble in water, but scattered among the irregular dust particles were a number of small spheres. The proportion of these spheres present was about 3 per cent. of the total number of dust particles. They were transparent and usually colourless, but some were distinctly brown or reddish. The maximum diameter of the spheres found was  $1\frac{1}{2}$  microns, but most of them were less than this. They were insoluble in water. The haze was unusually dense for a country district, and the number of dust particles per cubic centimetre was between 9000 and 10,000.

It will be remembered that on Derby Day there was very little wind, but what there was was from the north. It is difficult to avoid the conclusion that a large proportion of this dust travelled south from the manufacturing districts of the Midlands. The presence of coloured and colourless transparent spheres points towards ash particles ejected from chimneys, while the grey colour is not what one would expect if domestic smoke were the origin. The records obtained during London fogs are black, and a dense fog gives 40,000 to 50,000 particles per cubic centimetre.

For comparison with June 6, a dust record taken at 7 P.M. on the evening of June 10 at Cheam gave less than 100 dust particles per c.c. The wind was strong and blowing from the west, and visibility very good.

J. S. OWENS.

### Perseid Meteors in July 1592.

WITH reference to Dr. Fotheringham's interesting comments in NATURE, June 9, p. 774, on the probable shower of Perseids in 1592, I thought it best to accept the date kindly sent to me by Mr. Beveridge, as it fell near the time when a shower might be expected to occur. However, the shower of 1592 appears to have been 19 days earlier than the correct time, and this (with another reason stated later) at once throws doubts on the identity of the display with the true Perseids.

The near correspondence in epoch may still, however, occasion some suspicion that the Perseid shower formed the incident recorded in history, though the exact date and direction of the meteor flights are incorrectly given. This idea is encouraged by the fact that in two other cases (A.D. 784 and 865) the shower dates differed 10 days from the normal.

It is perhaps important to remark in this connexion that several rich showers of non-Perseids have been frequently observed in modern times which do not differ materially from the date of the Perseids. Three of these may be mentioned as possibly the same as the ancient showers recorded which failed to conform with the exact Perseid dates.

(1) There is a strong shower at  $303^{\circ} - 9^{\circ}$  near  $\alpha$  Capricorni on July 25-August 6.

(2) A rich display from  $339^{\circ} - 11^{\circ}$  in Aquarius on July 26-August 2.

(3) A fine shower seen in 1879 from Draco  $291^{\circ} + 60^{\circ}$  on August 21-25.

If the meteors of 1592, to which Mr. Beveridge has directed attention, "traversed the heavens from west to east," as stated in the ancient chronicle, they could scarcely have been Perseids, for the latter are moving nearly from east to west, and this seems an important detail.

The direction of the meteors of 1592 from west to east means that their apparent motions must have been slow and that they were overtaking the earth in its orbit. The Perseids belong to another class; they are swift objects meeting the earth at a velocity of 38 miles per second. I was not aware until I saw Dr. Fotheringham's letter that the direction of the meteors had been described as from west to east.

I adopted a period of 11.75 years (*Observatory*, May 1923) as agreeing with a large number of abundant returns of the Perseids and as it seemed the best to be derived. I directed attention to it in the hope that future observers would bear it in mind and test it in the light of additional observations.

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44 Egerton Road, Bishopston,  
Bristol, May 30.

### Tactile Vision of Insects and Arachnida.

WITH regard to Father O'Hea's letter in NATURE of May 26, p. 705, I wish to point out—

(1) That I originally questioned the statement that the house-fly and certain spiders avoided the approach of one's hand by detecting "convection currents."

(2) That experiments in this direction can only be made with *totally blind* insects.

(3) That I have not stated that vision is universal or even general among insects and arachnida possessed of eyes, and I offer no explanation (at present) of the use or purpose of "sightless eyes." Neither can I enter a discussion on "vision and light-sensitiveness."

I do maintain, however, that many species form comparatively clear images and can judge distances. The fact that a male Attid (and some Lycosids) will perform for the benefit of a female in an adjacent glass tube is at present only explicable on the assumption of vision. Father O'Hea has not, he says, worked on this point, and I persist in offering it as a preliminary objection to his hypothesis. This discussion cannot, however, proceed to any satisfactory conclusion until we have his further evidence for a large number of species; and until this is forthcoming I should suggest that a generalisation on the question of vision among arthropods cannot be made.

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