and one female. Reared by terrier bitch, all died within a year. They were exhibited to King George IV. at the Royal Cottage, Windsor, on November 1, 1824.

Second Litter.—Born April 22, 1825, at Clapham Common; there were three cubs, sexes not recorded. Reared by the mother, as also were all the subsequent litters. They only lived a short time.

Third Litter.—Born December 31, 1826 or '27, at Edinburgh, one male and two females. As stated in the previous paper, the year is given as 1827 in the handbill of the menagerie from which I quoted, and the other references seem to support that date; but Mr. John Atkins says it is given as 1826 in a printed catalogue in his possession.

Fourth Litter.—Born October 2, 1828, at Windsor, one male and two females.

Fifth Litter.—Born May, 1831, at Kensington, three cubs, sexes not recorded. They were shown to the Queen, then Princess Victoria, and to the Duchess of Kent. The whole group performed in a specially constructed cage at Astley's Amphitheatre, and in 1832 were taken by Mr. Atkins for a tour in Ireland. To a separate account of this tour reference has been made in my previous paper.

Sixth Litter.—Born July 19, 1833, at the Zoological Gardens, Liverpool, one male and two females. One, the male, lived for ten years in the gardens. The young male lion-tigers when about three years old had a short mane something like that of an Asiatic lion; the stripes became very indistinct at that age.

Mr. Atkins informs me that there is a badly stuffed specimen of one cub which was about a year old in the Museum at Salisbury, and from Mr. Harmer's letter (see NATURE, p. 413) there is one also in Cambridge.

From the account quoted by him it would seem improbable that that particular specimen, had it survived, could have bred. As a matter of fact I learn from Mr. Atkins that none of them ever did breed, though he does not know of any reason why they should not have done so.

Mr. Atkins thinks that the cubs of the earlier litters died from over-feeding; when he adopted a different treatment he had no difficulty in rearing them.

In my previous paper, in the quotation from Griffiths, the word "superfinesness" should read "superficies."

This record, it may be noted, while correcting some errors in the previously published accounts, also extends over a period subsequent to all of them. V. BALL.

Science and Art Museum, Dublin, April 15.

Soot-figures on Ceilings.

As the subject of dust-images was recently considered in some interesting letters in NATURE, I wish to record an example of a soot-image which was far more detailed and remarkable than any I have yet seen. The example is to be found on the ceiling of the billiard-room in the Golf Club House at Felixstowe. Abundant soot has been deposited above the lamps by which the table is lighted, and this is distributed so as to map out on the ceiling not only the outline of the joists, but that of the laths and even of the nails by which the ends of the latter are secured. The mark corresponding to the nail-head is certainly much larger

than the latter. I made from memory a rough sketch of the appearance, which is reproduced in the accompanying woodcut. I may be mistaken in the position of some of the light and dark shades. If the example is as new to others as it was to me it would be interesting to have a photograph of the ceiling before it is again whitewashed.

E. B. POULTON.

Oxford, April 17.

THIS phenomenon is often observed, though not often so clearly as in the case noticed by Mr. Poulton. It is due to the same cause as produces the dust-free space seen rising from hot bodies in illuminated smoky air, viz. a peculiar Crookesian (or rather Osborne Reynoldsian) bombardment of sufficiently

small dust-particles, in the direction of decreasing temperature, by the extra energy of the gas-molecules on one side. See papers by myself and the late Mr. Clark in NATURE (especially July 26, 1883, April 24, 1884, vol. xxix. p. 417, and January 22, 1885), and in Phil. Mag., 1884, Proc. R.I., &c.; also by Mr. Aitken, Trans. R.S. Edin., 1884. And see the remarkable theoretical paper by Prof. Osborne Reynolds on "Dimensional Properties of Gases," Phil. Trans., 1879.

Dust gets bombarded out of hot air on to all colder surfaces. The details of this effect are specially given by Mr. Aitken in NATURE, vol. xxix. p. 322. The badly-conducting plaster of a ceiling is no doubt fully heated by contact with the air below except in places where the conducting power of wood or iron keeps it comparatively cool; hence the picking-out of the pattern. Solid deposit from warm air on to cool surfaces can occur without any actual smoke; e.g. it can be noticed above incandescent lamps.

OLIVER LODGE.

The Use of Ants to Aphides and Coccidæ.

I HAVE just had an opportunity of seeing Dr. Romanes' interesting work, "Darwin, and after Darwin," and find therein (p. 292) the production of honey-dew by Aphides adduced as a difficulty in the way of the Darwinian theory. I have not paid any particular attention to Aphides, but have lately been much interested in the allied Coccidæ, which, since they produce a similar fluid attracting ants, may be considered to offer a parallel instance. Both Coccidæ and Aphides suffer from many predaceous and parasitic enemies, and there seems to be no doubt that the presence of numerous ants serves to ward these off, and is consequently beneficial. There is an interesting Coccid, *Icerya rosa*, which I find on Prosopis here, and on more than one occasion I have been unable to collect specimens without being stung by the ants. At the present moment some of these *Iceryæ* are enjoying life, which would certainly have perished at my hands, but for the inconvenience presented by the numbers of stinging ants.

Belt and Forel have also written on the protection of Coccidæ by ants ("Naturalist in Nicaragua;" and *Bull. Soc. Vaud.*, 1876). Maskell has given an account of the honey-dew organ of Coccidæ, from which it appears that it is something more than a mere organ for the excretion of waste products. This author also figures some of the fungi which grow on honey-dew, and it may well be that these also serve to prevent the attacks of enemies. When, as we sometimes see in Jamaica, the leaves appear to be coated with soot (*Antennaria robbinsii* is the fungus), it cannot be so convenient for coccinellid larvæ, Chrysopa larvæ, &c., to crawl about on them in search of Coccidæ.

Jamaica, April 3.

T. D. A. COCKERELL.

Blind Animals in Caves.

IN his last letter (p. 537) Mr. J. T. Cunningham states that the "early stages" of the European *Proteus* have not yet been obtained. This assertion is incorrect. In 1888 and 1889 the oviposition and development have been described by E. Zeller (*Zool. Anz.*, 1888, No. 290, and *Fahresh. Ver. Naturh. Württ.*, xlv., 1889, p. 131, plate iii.), who gives a coloured figure of the larva, and particularly refers to the development of the eyes. As early as 1831 (Oken's "Isis," 1831, p. 501) Michaelles remarked that the eyes in young specimens are more distinct and somewhat larger than in the adult.

G. A. BOULENGER.

OBSERVATIONS IN THE WEST INDIES.¹

HERE we are back at Nassau for the third time, and thinking you might be interested to hear of my cruises, I send you a short sketch of our trip. The first time we left Nassau we entered the Bahama Bank at Douglass Channel and crossed the bank to North Eleuthera, where we examined the "Glass Window" and the northern extremity of Eleuthera, we then sailed along the west shore of the island close enough to get a good view of its characteristics as far as Rock Harbour at the

¹ A letter from Alexander Agassiz to J. F. Dana; dated Steam Yacht *Wild Duck*, Nassau, March, 1893. Printed in the *American Journal of Science* for April, and communicated to NATURE by the author.