

required to take twelve half-days' instruction in the details of the course in experimental physiology, before October 1st of their year of service.

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PROFESSOR H. P. BOWDITCH.

HARVARD MEDICAL SCHOOL, BOSTON, MASS.

NOTE ON NATRIX GROHAMII B. & G.

IN Professor O. P. Hays' report on the Batrachians and Reptiles of Indiana* he says, on p. 589, "The young are no doubt brought forth alive and active." There is now no question about the fact of their being viviparous, as several were born alive in the Chicago Academy of Sciences, July 29th.

The adult female, measuring 775 mm. in length, was collected at Glenn Ellyn, Illinois, on July 25th, by Mr. Frank M. Woodruff, and its extreme size was particularly noted; four days later it gave birth to eight young, which were alive and very active. The births took place some time during the night, and the young were noticed on the following morning a little after 7 o'clock. They were at that time fully active and resembled somewhat the parent, although differing in some of the color markings. The young measured 246 mm. in length and were colored as follows: Back slaty-blue with two very dark dorsal stripes; a dark stripe borders the edge of the blue dorsal surface and separates it from the yellowish lateral surface; this is in turn separated from the greenish-yellow ventral surface by a black stripe, which follows the edges of the plates in a zigzag manner and disappears on the side of the head.

The young were kept alive for several weeks and finally preserved, with the parent, in the Academy's collection (Mus. No. 10,337 adult; 10,335 young). As another point of interest we might mention that a specimen of the Western Bull Snake (*Pitnophis sayi* Schleg), measur-

ing nine feet in length, laid twenty-two eggs in captivity during the first week in August. The female was in the same cage with a small male for about two months previous to the laying, and it is probable that copulation took place during captivity.

FRANK C. BAKER,

FRANK M. WOODRUFF.

PSEUDO-AURORA AGAIN.

IN SCIENCE, First Series, for December 2 and 16, 1892, there was a short discussion of this subject, and now appears a still longer letter on the same subject in SCIENCE for January 29, 1897. It seems a little strange that so simple a phenomenon should give rise to so diverse views, and yet when we consider how many views have been given of a precisely similar phenomenon, 'The Brooken Spectre,' it is not so surprising. It is probable that this latest description is given from memory and not from notes made at the time—an exceedingly important proceeding if one would keep from falling into grievous errors. Every electric arc light has a support at the top, and this would absolutely prevent any column of pure white light being projected toward the zenith. More than this, if these assumed horizontal planes of ice reflected the light it seems impossible to consider that the reflections would be only from a region directly above the lamp.

If one will turn to the description in SCIENCE, December 2, 1892, he will see how it is almost exactly contrary to this later one, and yet the former undoubtedly presents a better idea of the phenomenon. When the air is full of frost particles or fog any object standing before a light will cast a shadow into the mass of frost particles or fog. If one will stand underneath an arc light when the air has fog in it he will see what appears like a beam projected into the fog. The same may also be seen when any foot rest or projecting arm intercepts the light; in this case a horizontal beam will be seen passing into the fog. Just at sunset if one stands upon a broad plain with his back to the sun he will see his shadow cast upon the ground and extending more than 100 feet to the eastward. Now imagine the surface on which the shadows cast to be practically on all sides like fog; then

* Indiana. Department of Geology and Natural Resources, 17th Annual Report, 1891.