

paring boys for their studies, it may be hoped that a more general union may be arrived at with regard to this standard.

Free libraries are still progressing, and so interesting are the statistics of these "universities of the people" in the United States, that Gen. Eaton promises a special publication on the subject, reprinting such parts of the great Report of 1877 as have permanent value. Several magnificent bequests and donations of books to large libraries show how naturally large private collections will gravitate to the free public library, where the locality is happily provided with one. One such, that of Dr. Toner's, containing 27,000 books and 12,000 pamphlets, was thus bequeathed to the Library of Congress. This latter institution, at the end of 1882, already contained 480,076 volumes and 160,000 pamphlets, and the forthcoming plan of a new building to keep in utilising order this rapidly growing mass is intended to embody the best appliances, arrangements, and ideas about library construction which such enormous accumulations render indispensable. An excellent precaution also against knowledge being locked up in over-large supplies of literature is taken at Chicago, where Dr. Poole, the great cataloguist, receives schools or teachers on a Saturday, surrounded by all the books of the library bearing upon some matter. By showing how interesting that subject is as a department of human thought and industry, and how much the contents of the library may help the student to a knowledge of such a subject, he has succeeded in producing a profound beneficial effect upon the upper grades of the school system. W. ODELL

BIRDS BREEDING IN ANTS' NESTS

THE following communication to Mr. Grant Duff, Governor of Madras, has been forwarded to us for publication by Sir John Lubbock:—

To Major Awdry, Private Secretary to His Excellency the Governor of Madras

OOTY, January 18, 1885

SIR,—I beg to acknowledge your letter of yesterday's date.

The Southern Chestnut Woodpecker (*Micropternus gularis*), always, as far as I have observed, uses an ants' nest to nest in, and Mr. Gammie, the Superintendent of the Government Cinchona Estates at Mongphoo, near Darjeeling, has noticed the same thing with regard to the allied northern species, *Micropternus phaliceps*, and the peculiarity probably extends also to the allied species found in Burmah, Siam, &c.

Mr. Gammie thinks that when an ants' nest has been taken possession of by the bird that the ants desert the nest. This is a point on which I cannot speak with certainty. Mr. Gammie has taken nests of the northern species in which, although the bird had laid, the ants remained, and he has taken other nests where not a single ant remained; but there is nothing to show that these nests were not deserted before the bird took possession. I myself have taken nests of the southern form, in which, though the eggs were partially incubated, the ants remained, showing that some considerable time must have elapsed since the bird took possession. This is a point that I hope to be able to elucidate within the next few months, when the birds will be breeding.

When *Micropternus* is breeding the feathers of the head, tail, and primaries of the wings get covered with a viscid matter, having a strong resinous smell, and this substance is usually rather thickly studded with dead ants (*vide* "Stray Feathers," vol. vi. p. 145).

Two species of kingfishers also to my knowledge nidificate in ants' nests—viz. *Halcyon occipitalis*, confined to the Nicobar Islands, and *H. chloris*, which ranges from India as far south as Sumatra.

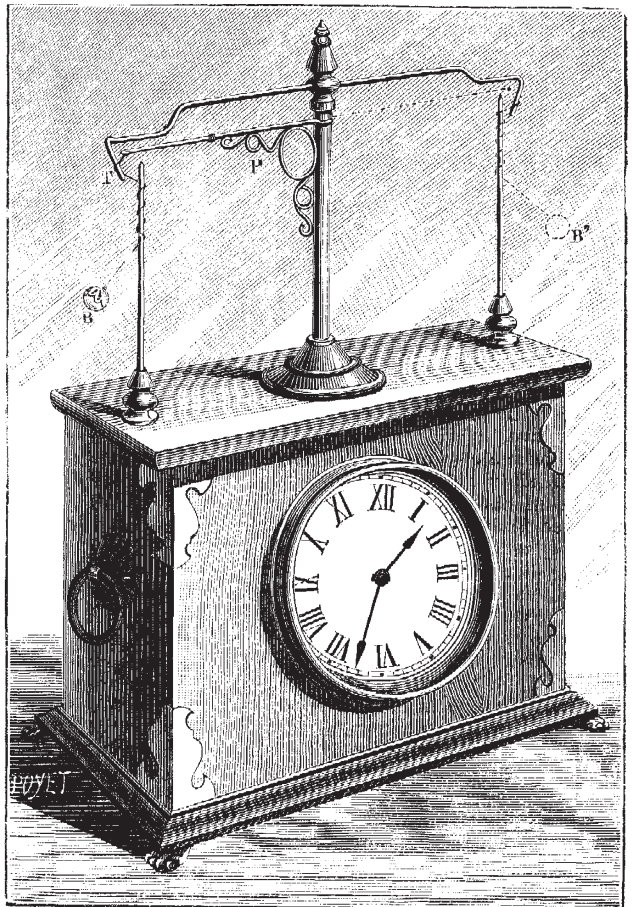
At Mergui, in South Tenasscrim, I found a nest of *H. chloris* in a hornets' nest, and although I saw the birds repeatedly enter the hole they had made in the hornets' nest the hornets did not seem to mind it, but they resented in a very decided manner my attempt to interfere with the nest.

I am sorry I cannot give His Excellency more certain information as regards the desertion or otherwise of the ants from their nest after the birds have taken possession of it, but I hope to be able to finally settle the question shortly.

I am, Sir, yours obediently,
(Signed) WM. DAVISON

A NEW AMERICAN CLOCK

THE accompanying figure from *La Nature* illustrates a new American clock of ingenious construction. It is distinguished from all other clocks by the singular and original form of its pendulum: or rather of the system which serves to maintain a synchronism more or less perfect between the passage of time and the indications on the dial. The arrangement of this clock is based on



the principle of torsion. It has to be wound up daily, and the phase of the pendulum—that is to say, the time which elapses between two identical positions of the regulating system—is six seconds. The general mechanism does not differ from that of ordinary clocks; we find the main spring and other usual parts, and a train of wheels giving rotation to a vertical axis which is seen over the case and the rate of motion of which is to be regulated.