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- ders, Philadelphia, 1994, 2nd edn, pp. 137–154.
5. Bottiger, M., *Public Health Rev.*, 1993/94, **21**, 27–33.
 6. Melnick, J. L., in *Vaccines* (eds Plotkin, S. A. and Mortimer, E. A.), W.B. Saunders, Philadelphia, 1994, 2nd edn, pp. 155–204.
 7. Paul, Y. and John, T. J., *Indian Pediatr.*, 1999, 1061–1064.
 8. Bhargava, P. M., *The Hindu*, Chennai, 12 December 1999, Supplement, p. iv.
 9. Anon, *The Hindu*, Chennai, 5 August 2000, p. 18.
 10. Editorial, *Lancet*, 1984, **2**, 1309–1310.

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Bird, flowers and pollination ecology

The recent paper by Atluri *et al.*¹ provides some interesting information on the pollination ecology of *Helectres isora*. Information on bird flowers, their visitors and their pollination ecology are few from the sub-continent and this paper is a welcome addition to our knowledge of such systems. However, there are a few major errors in the paper that need to be addressed. The most glaring of these is the identification of the bird pollinator. The authors refer to Quaker babbler (*Alcippe poiocephala*) as one of the pollinators, but according to Figure 1 d in the article, it appears that the bird is the white-headed babbler (*Turdoises affinis*). The two are very different birds. *T. affinis* is bigger with a broader bill that can closely fit an *H. isora* flower, while *A. poiocephala* is a small bird and its bill and forehead do not fit the flower as closely as *T. affinis*. Consequently, pollination efficiency may be different between the two species. Misidentification can have important implications when it comes to conservation and in no case should be

taken lightly, especially when the pollinators can be identified by proper use of field guides.

The authors only record three avian species but a lot more insect visitors. This is very unlikely even in areas that are disturbed. Our own observations and that of Santharam² have shown that a variety of visitors visit the flowers though the species may vary from place to place. Was there then a problem with the method of quantifying visitation? One is likely to miss out on bird visits if one is close to the plant for recording insect visitors. By the way, no detailed account of how the visitation was done is mentioned. This is important in such a work as it could explain the absence of some visitors.

Reliance on non-nectarivorous birds, the authors say, is not an ideal and fitting strategy for *H. isora*. It is well documented that pollination by non-nectarivorous birds does occur³. For instance, the Canary islands which have a variety of bird flowers have no specialized pollinators and sylvaoid war-

blers, an insectivore species, exploit nectar and opportunistically pollinate the flowers⁴. Flowers such as *H. isora*, can also be an important resource for the associated visitors (see Santharam²). There is no mention of this aspect in the discussion.

1. Atluri, J. B., Rao, S. P. and Subba Reddi, C., *Curr. Sci.*, 2000, **78**, 713–718.
2. Santharam, V., *Curr. Sci.*, 1996, **70**, 316–319.
3. Brown, D. and Hopkins, M. J. G., *Oecologia*, 1995, **103**, 89–100.
4. Olsen, J. M., *Bot. J. Linn. Soc.*, 1985, **91**, 395–414.

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Gold in the Meghalaya Plateau!

This has reference to the article by A. V. Subrahmanyam *et al.* (*Curr. Sci.*, 2000, **78**, 1189–1190). The occurrence of pyroclastics and dyke associated with the Lower Mahadak Formation (lower Cretaceous) on the northern bank of the Wahblei river in the Meghalaya Plateau appears to be of interest from the gold mineralization point of view.

From their studies the authors have concluded that (1) Pyroclastics were produced by explosive volcanism during the lower Cretaceous period (Rajmahal–Bengal–Sylhet volcanism); (2) Pyroclastics contain uranium with ranges from 10 to 25 ppm at Wahkyn and up to 1740 ppm at Domiasait; (3) The associated tuff beds within the

sandstone units appear to be the source of uranium.

These findings provide a geological clue to look for gold in this area. This is based on concept and ground realities elsewhere.

According to a concept, the precious metal deposits on land are actually remnants of ancient volcanics that were first