

## NOTES AND COMMENTS

### SINISTRALITY IN *CEPAEA HORTENSIS*

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Most gastropods are dextrally coiled. The incidence of sinistrality varies from unrecorded to those few species which are always sinistral. Between these extremes lie species in which sinistrality is extremely rare and those which are sometimes polymorphic for shell coiling (*e.g. Limnaea peregra, Partula suturalis*). Although sinistral individuals of *Cepaea* have been recorded (*e.g. Clarke et al.*, 1968), no attempt appears to have been made to breed from them. This is probably due to their extreme rarity; in a survey totalling observations on over 50,000 adult *C. hortensis* these authors have found only two sinistral individuals (brown unbanded and yellow 5-banded) in widely separated colonies in Somerset, England. This low frequency is characteristic of the genus.

The genital aperture of a dextral *Cepaea* lies on the right side of the head and mating snails adopt a head-to-head position. The sinistral individuals found by the authors have genital apertures on the left side so that it is probably impossible for such individuals to mate with the normal form. Sixty-four dextrally coiled offspring, representing 100 per cent. survival of eggs, have been obtained from a cross between the two sinistral individuals mentioned above. Only the yellow-shelled individual has so far laid eggs.

The result can be interpreted in one of two ways. (i) Sinistrality is genetic and maternal in effect. A recessive gene for sinistrality, as in *Limnaea peregra* (Boycott *et al.*, 1930), requires that both grandparents of the Y5 individual be heterozygous for coiling. A dominant gene for sinistrality, as in *Partula suturalis* (Murray and Clarke, 1966), requires only that the female parent of the Y5 individual be heterozygous. (ii) Sinistrality is the result of a phenotypic modification of embryonic cleavage and is not inherited. This appears to be the case in the closely related *Helix pomatia* where more than 30 crosses between sinistrals all yielded dextrals (Pelseneer, 1920), and also the explanation of the occurrence of some sinistrals in pure dextral lines of *Limnaea*. Although no firm conclusions can be reached concerning the present results, in view of the fact that heritable sinistrality in any helicid has been determined only for a single race of *Helix aspersa* (Jeffries, 1860), we are of the opinion that sinistrality in *Cepaea* is rather unlikely to be genetic in origin.

## REFERENCES

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