

that could be detected by shipboard sampling or remote-sensing techniques.

The existence of ocean corridors for sea turtles is important to the development of effective international conservation strategies. Global conservation efforts for sea turtles have focused primarily upon nesting beaches and foraging areas. It may, however, be equally important to safeguard the interconnecting migratory corridors. The clustering of many individuals in space and time along migratory corridors could greatly increase the vulnerability of entire populations. The migratory path observed here may be representative of the migration route of all Pacific leatherbacks in the vicinity, and possibly in the entire Central American region. At the same time, such concentrations of turtles could facilitate protection of world stocks, simply by restricting potentially harmful activities within the spatial and temporal corridors.

The convergence of sea turtles along such constricted routes could have far-reaching ecological implications. It is possible that observed patterns of sea turtle migration are strongly influenced by distribution and availability of marine resources. Hence, by describing the routes of leatherbacks, we also may be depicting oceanographic features on a broader scale. If migratory routes are closely linked to mesoscale features or broader-scale environmental patterns, then current declines in sea turtle populations may reflect concurrently diminishing ocean resources.

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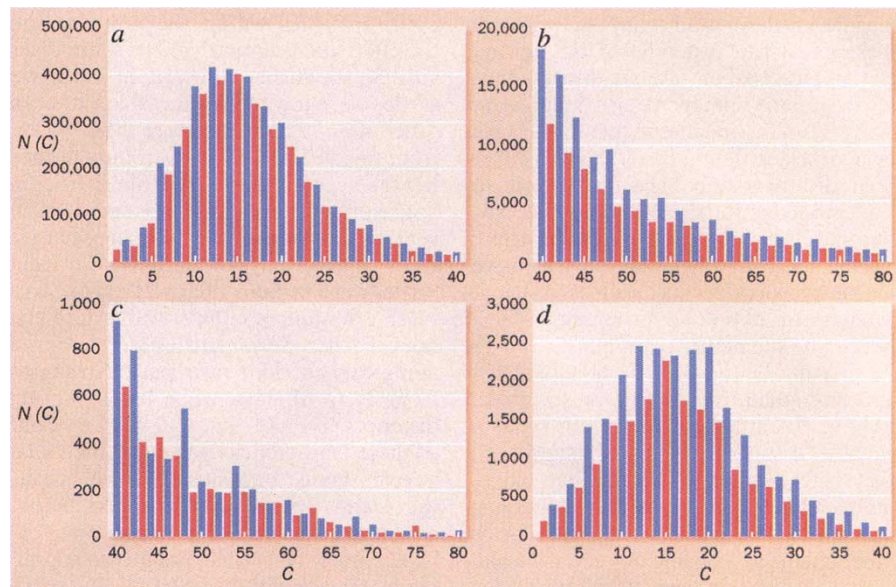
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1. Brongersma, L. D. *Zool. Verhandl.* **121**, 1–318 (1972).
2. Goff, G. P. & Lien, J. *Can. Field Nat.* **102**, 1–5 (1988).
3. Pritchard, P. C. H. *Anim. Behav.* **21**, 18–27 (1973).
4. Shoop, C. R. & Kenney, R. D. *Herp. Monogr.* **1992** (**6**), 43–67 (1992).
5. Keinath, J. A. & Musick, J. A. *Copeia* **1993**, 1010–1017 (1993).
6. Morreale, S. J., Standora, E. A., Paladino, F. V. & Spotila, J. R. *Proc. 13th Annu. Symp. Sea Turtle Biol. Conserv.* (NOAA Technical Memorandum NMFS-SEFC-341) 109–110 (1994).
7. Plotkin, P. T. et al. *Mar. Biol.* **122**, 137–143 (1995).
8. Standora, E. A., Spotila, J. R., Keinath, J. A. & Shoop, C. R. *Herpetologica* **40**, 169–176 (1984).
9. Duron-Dufrenne, M. *C.R. Acad. Sci.* **304**, 399–402 (1987).
10. Eckert, S. A., Eckert, K. L., Ponganis, P. & Kooyman, G. L. *Can. J. Zool.* **67**, 2834–2840 (1989).
11. Lohmann, K. J. & Lohmann, C. M. F. *Biol. Bull.* **185**, 149–151 (1993).
12. Yoder, J. A. et al. *Nature* **371**, 689–692 (1994).

Even-odd carbon atom disparity

SIR — We have stumbled on a striking feature of the composition of organic compounds, which, we believe, has not been noticed previously, and for which we have no simple explanation. In the sample of almost seven million organic compounds whose atomic compositions are listed in the Beilstein database¹, there is a



a, Frequency, $N(C)$, of occurrence of organic compounds in the Beilstein database as a function of the number, C , of carbon atoms in the molecule in the range $C=1$ to 40; b, same as a for the compositions with $C=40$ to 80; c, same as b but restricted to compounds isolated from natural sources; d, same as a but restricted to organic compounds listed in the CSD.

regular alternation in the frequency of occurrence of compounds with even and odd numbers of carbon atoms. There are more organic compounds with an even number of carbon atoms than with an odd number.

This alternation is discernible in the histogram (a in the figure), where it stands out against the strongly peaked distribution with its tip around $C=12$ to 16, and it becomes unmistakable once the distribution begins to flatten out at larger C values, for example in the range $C=40$ to 80 (b in the figure). A similar even-odd alternation is discernible in the subpopulation containing exclusively natural product compounds (c in the figure; ref. 1), although here it is not so pronounced. It is also found in various other smaller subpopulations, such as those in the *Handbook of Chemistry and Physics*² and in

catalogues of commercial supply houses, as well as in the collection of organic crystal structures listed in the Cambridge Structural Database (CSD) (d in the figure; ref. 3).

One can think of reasons why the CSD sample may be biased in favour of compounds with C even, for example, preference for centrosymmetrical molecules (about 12% of crystal structures in the CSD contain molecules located on inversion centres^{4,5}), but the reason for the preference for even carbon numbers in

the totality of organic compounds is not obvious. Could there be some fundamental underlying parity rule that is yet to be discovered?

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Scientific Correspondence is intended to provide a forum in which readers may raise points of a scientific character. Priority will be given to letters of fewer than 500 words and 10 references.

1. STN Beilstein online Version of 1 July 1996 (Beilstein Informationssysteme GmbH, Frankfurt, 1996).
2. *CRC Handbook of Chemistry and Physics* (ed. Lide, D. R.) 73rd edn (CRC, Boca Raton, FL, 1992).
3. Cambridge Structural Database v.5.11 (Cambridge Crystallographic Data Centre, Cambridge, UK, 1996).
4. Brock, C. P. & Dunitz, J. D. *Chem. Mater.* **6**, 1118–1127 (1994).
5. Desiraju, G. R. *Crystal Engineering. The Design of Organic Solids* (Elsevier, Amsterdam, 1989).