

Of plants and men

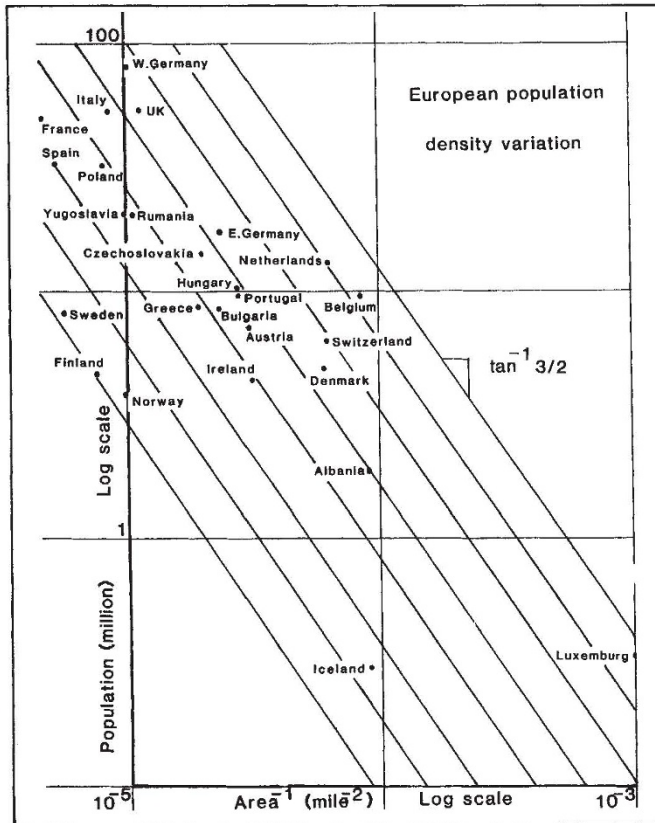
SIR — Your review of science in the Low Countries (*Nature* 7 June, pp.491–510) emphasized the contrasts of administrative style and professional practice between these ostensibly similar countries.

It was, however, the issue of overall similarity that reminded me of an earlier casual observation I had made of a human parallel to the so-called “ $-3/2$ ecological power law” of plant distribution. In essence, this law — in fact, a rule — describes the relationship between numbers of a given species in a given area and their combined biomass in such a way that a graph of biomass against distribution density, both on a logarithmic scale, exhibits a linear relationship with a gradient of $-3/2$. This observation seems to have originated from Japan¹⁻³ and has yet to be properly explained⁴ for plants.

For my part, as an ecological novice, I attempted to explore the possibility that the “ $-3/2$ law” may be represented in faunal distributions as well as plants. Unfortunately, animals are more mobile than plants. Also, the animals for which most distribution data are available to the non-specialist — man — live in civilized communities within which false distributions arise due to activity specializations. Therefore, I decided to test the theory at a national level by “weighing” whole nations, that is, noting the population size, and simultaneously determining their distribution density as 1 nation per national area, that is, $1/(\text{national area})$. This removes the anomalies arising from urban centralization, etc.

The outcome of this trivial exercise is most enlightening. On a worldwide basis, the aforementioned log-log graph appears at first sight to be a scatter plot. However, if straight lines with a gradient of $-3/2$ are superimposed on it, the nations line up in well ordered fashion, with those which might instinctively be thought to be similar appearing on the same line as one another and distinctly separate from dissimilar nations. A particular case in point is represented by Luxembourg, Belgium and the

Netherlands, the population densities of which, in that order, appear to be similar to the secular development of a group of plants of one species. One could go on to draw attention to certain striking anomalies and to the historical, even anthropological, comments which are thus



available to any reader prepared to repeat the diagram from simple demographic publications such as a family encyclopaedia. However, suffice it to note here that these observations are made entirely empirically — in the spirit of the original “ $-3/2$ law”. Nevertheless, their implications may not be lost on those familiar with the all-embracing Gaia⁵ concept.

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2. Tadaki, Y. & Shidei, T. *J. Jap. For. Soc.* 41, 341 (1959).
3. Yoda, K., Kira, T., Ogawa, H. & Hozumi, K. *J. Biol. Osaka City Univ.* 14, 107 (1963).
4. White, J. *J. theor. Biol.* 89, 475–500 (1981).
5. Lovelock, J.E. *Gaia: a New Look at Life on Earth* (Oxford University Press, 1979).

Selfish ideologies

SIR — Surely your opinion of *Nature*'s readership cannot be so low that, in order to hold our interest in a discussion of the bankrupting of Third World nations, you have to convince us that this would “[impede] the pursuit of research objectives of all kinds” (“Planning for next

year's summit”, *Nature* 309, 569; 1984). You might equally well challenge us to oppose nuclear warfare on the grounds that it would fog our autoradiographs.

At a time when the dominant political ideology encourages each group to defend its own interests with little regard to the suffering of others, it might be hoped that the scientific community, which purports to cherish ideals of vision and cooperation, would adopt a less parochial mentality.

Let us be honest; the World Economic Summit achieved nothing for the unemployed in the West or for those in poverty in the Third World. Of course we need growth and innovation, but not to prop a tottering economic system. Rather, we need programmes of technological development and production designed to meet the real needs of our populations. Such programmes will not be forthcoming until the selfish ideologies reflected in your editorial are rejected.

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Mrs Malaprop at work

SIR — It was interesting to see the article on molecular conformations in surfactant micelles (*Nature* 3 May, p.42) listed in the contents page as “molecular confrontation”. True, there has been confrontation over the issue of micelle structure, but it has been between men and not molecules. To stretch it down to the molecular level is being a little anthropocentric, is it not?

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Trouble whipping up

SIR — As a one-time farmer but now dependent on commercial eggs for my cooking, I suggest a crucial control is missing from the letter from McGee *et al.* (“Why whip egg whites in copper bowls?”, *Nature* 308, 667; 1984). Their eggs appear to come from a commercial supplier and it is unclear whether or not they were free range. In my experience, the whites of fresh, free-range eggs beat more easily than do “fresh” commercially supplied ones, which may actually be several weeks old (they also make better mayonnaise, but that is another story).

The diet of free-range hens may differ in the availability of trace elements such as copper, or the macromolecular composition of the egg white may change with ageing, or both. Can I suggest McGee *et al.* repeat their experiment with eggs of more accurately defined provenance?

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