Inclusive fitness

From Andy Gardner, Department of Zoology, University of Oxford
Evolutionary theorist William Hamilton showed that natural selection leads organisms to maximise their "inclusive fitness", not their personal reproductive success. That is, they behave as if they value the lives of relatives, which may lead them to exhibit altruism towards kin.

No such principle exists for multilevel selection, as described by David Sloan Wilson (Instant Expert, 6 August). Except for those special cases in which within-group selection is eliminated, groups cannot be regarded as fitness-maximising "superorganisms". This is why evolutionary biologists prefer to work with inclusive fitness rather than multilevel selection. Only the theory of inclusive fitness describes both the process and the purpose of Darwinian adaptation.
Oxford, UK

From Bryn Glover
D.S. Wilson offered a useful and timely gathering of the thoughts of biologists over the past few decades on whether altruism is a natural characteristic or an artificial replicator of human culture – what Richard Dawkins called a "meme" – imposed by the demands of civilisation, religion and overpopulation.

As humanity approaches what may be its ultimate crisis over climate, energy, food, land and resources, it is vital that our tactics should be based upon the best information, science and analysis. Those who advocate business as usual, allowing market forces to continue to govern outcomes, often quote a form of simplistic Darwinism based on the phrases "survival of the fittest" and "nature red in tooth and claw".

But supporters of a cooperative approach are frequently caught out by biologists' apparent support for the individualistic manifestation of human behaviour. I am heartened that my arguments are now supported by what Wilson refers to as "a new consensus", and that the individualism advocated by former UK prime minister

Margaret Thatcher was at best wrong-headed. Unless we can devise a philosophical socialist approach to the production and distribution of resources, acceptable on a willing, voluntary basis by the vast majority, then humanity is probably destined for a new exploitative tribalism.
Cracoe, North Yorkshire, UK

Seriously memetic

From Daniel Dennett, Tufts University
Perhaps the playful tone and title of Jonnie Hughes's book *On the Origin of Tepees* (6 August, p 48) lulled reviewer Jonathan Keats into underestimating the book's ambitious and original discussion of memes.

Unlike the vast majority of recent writings about memes, this is a serious book that does "add to the theory" in spite of Keats's denial. It belongs on the reading list of anybody who hopes to use Richard Dawkins's insight into memes, offering a serious scientific account of cultural change and innovation. That it is entertaining is a bonus, not a substitute for substance.
Medford, Massachusetts, US

Unnecessary zombie

From Tim Allman
Elizabeth Hatherell's discussion of medication problems in children perpetuates a misconception about attention-deficit disorder: she writes that the drugs "numb all feelings" (16 July, p 28). In fact, people respond differently, and finding the right drug and dose with tolerable side effects takes time.

If a child is numbed or "zombied out" by medication, there is a problem with the drug selection and/or dose. This is a side effect which no one should have to endure, not a necessary condition of treatment.
Guelph, Ontario, Canada

Truth about trees

From Christopher Dean
In his letter (18 June, p 35) Philip Stewart provided excellent tips for climate change mitigation: reforestation of denuded areas, greater use of timber products, and their reuse and recycling. My calculations have brought me to the same conclusions.

However, great care must be taken not to confuse those ideas with similar-sounding ones from forestry industries regarding primary forests or secondary forests after one harvest cycle. The industry is confusing the public, in Australia at least, by cloaking its logging operations in public-relations talk of reforestation.

Removing wood from primary forests and replanting trees has a time-averaged net emission for several harvest cycles, whereas reforestation on long-cleared land has net sequestration of carbon for several cycles.

We need to differentiate, stop wasting public resources on mischievous PR, and work on getting it right.
Adelaide, South Australia

Incontinence bots

From Stephanie Trotter
I congratulate the volunteers on the project Living with Robots and Interactive Companions, who are trying to find out how robots can be truly useful to people – and

Enigma Number 1661

Latin art

BOB WALKER

Joe drew a 5 by 5 grid and numbered the squares from 1 to 25 as indicated. He asked Penny to colour the 25 squares using the minimum number of colours, ensuring that for each square and the two, three or four squares next to it no two colours in that set were the same. Penny painted squares 1 and 23 red.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

What other numbered squares did Penny paint red?

WIN £15 will be awarded to the sender of the first correct answer opened on Wednesday 28 September. The Editor's decision is final. Please send entries to Enigma 1661, New Scientist, Lacon House, 84 Theobald's Road, London WC1X 8NS, or to enigma@newscientist.com (please include your postal address).
Answer to 1655 Number spotting: prime 43651 and square 12544
The winner J. Bolton of Rugby, Warwickshire, UK