Reply from John Thompson

First and foremost, I did not criticize the models of Via and Lande[1]. I merely tried in a single paragraph to state how they have advanced our knowledge of the conditions under which plasticity may evolve. I therefore welcome Via's elaboration and clarification of this issue. It was out of the question that I devote an equivalent length of text to this issue.

Second, Via complains that I did not point out the relevance of a cost to plasticity in van Tienderen's model[2]. My reference to this recent study was, however, to point out that depending on the type of selection, the outcome may be different. This point was clearly made in the review and thus the interested reader can, by consulting the cited works, discern the details.

Third, I accept her criticism of my interpretation of Scheiner and Lyman's work[3,4].

Overall, given the areas of agreement in Via's critique, I feel that my review may be more correctly criticized as being incomplete rather than inaccurate. This reflects how our knowledge of the evolutionary role and significance of plasticity will be greatly advanced by empirical studies that incorporate and test model predictions and also reflects the need to continue the discussion on how best to clarify this subject.

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Angiosperm Origins: Reply to Donoghue and Doyle

In my paper[1], I tried to show how major angiosperm characters could actually arise from the supposed homologous structures known in a number of fossil angiosperm-like gymnosperms and how new ideas of homology and new data on chronological sequences could affect phylogenetic reconstructions. Throughout the paper, I relied on first-hand, often nonconventional, morphological information: for instance, the case of the *Caytonia* cupule[2] raised by Donoghue and Doyle[3], who insist on the textbook interpretation of this and other morphological traits.

I can only restate that, whatever the method of phylogenetic reconstructions, they depend primarily on ideas of homology, and if these ideas are drawn from textbooks it is inevitable that the textbook notion of phylogeny will be confirmed. But even elementary textbooks would tell us that closed carpels – one of the instances of evidence for monophyly chosen by Donoghue and Doyle – are not shared by the most primitive representatives of various angiosperm lineages, such as *Drimys, Platanus*, etc.: this makes their unique derivation highly improbable.

Moreover, one has to distinguish between structural and functional traits. I suggested[1] that 'in the case of stigmas and double fertilization, the structures were ready; angiosperms had only to find a new function for them'. Endosperm is an example of such functional innovations for which the 'fashion-monger chase' hypothesis was proposed: 'each adaptive innovation appearing in a single lineage opened a new ecological niche, thus promoting similar innovations in other preadapted lineages'[1]. Such mechanisms need to be invoked not only for polyphyletic hypotheses: functional parallelisms are widely accepted even by cladists. I agree with Donoghue and Doyle that the morphological diversity of angiosperms increased with time, but this is hardly evidence of monophyly. More importantly, no transitional forms ever existed between the monosulcate and tricolpate pollen types or the platanoid and alismatoid leaf types, which appeared at nearly the same time[4].

As for molecular data cited by Donoghue and Doyle in support of angiosperm monophyly, they exist for no more than a few dozen out of several hundred thousand angiosperm species; more data are needed before firm conclusions can be drawn.

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Tropical Forest Exploitation

Following Dobson and Absher's recent *TREE* article on the economics of tropical forest use[1], I would like to draw attention to some pertinent conclusions from a recent conference held in Paris, France, by UNESCO/CNRS and entitled, 'Food and Nutrition in the Tropical Forest: Biocultural Interactions and Applications to Development'. The 150 papers presented at the meeting described the tremendous diversity of ways in which different peoples nourish themselves in rain forests in Africa, South America and Asia. Here are some selected conclusions:

(1) The value for future generations of the knowledge possessed by the inhabitants of the forests is inestimable. Some particularly fascinating examples were described by Francis Hallé (Institut de Botanique, Montpellier, France) who presented new findings in traditional phytopractices, including techniques for controlling tree productivity, decreasing the age of sexual maturity and increasing tuber yields – all using simple treatments devised by different peoples and highly amenable to transfer to other regions.

(2) There is a great complexity of food types in the forests, ranging from wholly wild foods through managed species, cultivated and finally domesticated species, which were defined by Charles Clement (University of Hawaii at Manoa, Honolulu, USA) as ones that cannot reproduce without the intervention of man.

(3) Agriculture and forest use are intricately interwoven activities. This is often ignored in research