properties which divide the euglenoids from other algae[18]. The blue-green algal cytochrome *f* does not seem to be appreciably closer to any of the other bacterial cytochromes *c* than are the eukaryotic cytochromes *f*, but no rigorous searches for similarity have been made.

There seem to be three possible explanations for the close sequence similarity between the algal prokaryote and the algal eukaryote cytochromes *f*. First, the whole genome of the eukaryotic cells are evolutionarily derived from a prokaryote closely related to the blue-green alga; or, second, the eukaryotic chloroplasts are derived from a prokaryote related to the blue-green alga, but the remainder of the eukaryotic genomes are derived from different precursors; or, third, transfer of the cytochrome *f* genes (or of a cluster of genes) has taken place in one direction or other between the blue-green algal line and a eukaryote ancestor. The sequence similarity among the cytochromes *f* is so great that convergence cannot be considered a reasonable possibility.

On the present evidence it is not possible to distinguish between these three hypotheses, and it is not easy to design experiments that would rigorously distinguish between them. Much more sequence evidence will obviously be needed, both from cytochromes *f* (particularly from other blue-green algae) and from other proteins and nucleic acids. It is important that parts of the blue-green algal genome concerned with functions other than photosynthesis should be compared with the corresponding parts in eukaryotes, for if the second hypothesis (the endosymbiont theory) were correct, the blue-green algal functions might be expected to have atrophied in the chloroplast. By some criteria, such as DNA base composition[19,20], the blue-green algae are a very heterogeneous group, but their photosynthetic mechanisms seem to be very much more uniform[3,21]. This finding is consistent with the second and third hypotheses. Results from bacteria, particularly on the sporadic distributions of homologous proteins[10,15,16], suggest that much gene transfer has taken place. If such events (the third hypothesis) have affected a significant proportion of the genomes of a set of organisms over a period of time, then a phylogeny for the set as whole organisms will not exist. Sequence studies would then not be able to provide results from which a tree relating the major groups of organisms[2] could be deduced, but may be able to show that such trees are a meaningless oversimplification of what must actually have happened.

	a	*b*	*c*	*d*	*e*
a	100	47	53	42	48
b	47	100	48	35	45
c	53	48	100	35	67
d	42	35	35	100	37
e	48	45	67	37	100

Fig. 3 Similarity matrix for amino acid sequences of cytochromes *f* from blue-green bacteria and eukaryotic algae. *a*, *Spirulina maxima; b*, *Monochrysis lutheri; c*, *Porphyra tenera; d*, *Euglena gracilis; e*, *Alaria esculenta*. The values shown are matches per 100 residues. For the comparison Asx is taken as being equal to both Asp and Asn, and Glx to both Glu and Gln.

Very recently N-terminal sequence homology has been reported between the C-phycocyanins of blue-green bacteria and the corresponding proteins of *Cyanidium caldarium*[22], a eukaryotic alga of anomalous properties.

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Corrigendum

The Editor has been advised that the authorship of the paper "Synthesis mimics of insect juvenile hormone" (*Nature*, **232**, 486; 1971) does not accurately reflect the work done on the paper. With the concurrence of all the present authors, the name of Hwalin Lee (then of Stauffer Chemical Company) should be added as first author.

Errata

In the Matters Arising contribution "Changes in the latitude of the climatic zones of the Northern Hemisphere" by M. K. Miles and C. K. Folland (*Nature*, **252**, 616, 1974) the following corrections are necessary. The second author's name should read Folland not Follard, in the legend to Fig. 2 1970–37 should read 1970–73 and in the legends to Figs. 1 and 2 subpolar flow should read subpolar low.

In the article "Particle acceleration in planetary magnetospheres" by M. J. Houghton (*Nature*, **251**, 205; 1974) equation (1) should read $\sigma_{\parallel} \simeq \omega_{pe}/(4\pi \times 10^8)$ mho m^{-1} and not as printed.

In the article "Acetylcholine as an excitatory neuromuscular transmitter in the stomatogastric system of the lobster" by E. Marder (*Nature*, **251**, 730; 1974) choline acetyltransferase was printed incorrectly as acetylcholine transferase on three occasions. These were in the heading to Table 1, in the first line of the penultimate paragraph on page 730 and in the second line of the last paragraph of the article.