

ADDENDA

013 HORSFALL, J. G. & LUKENS, R. J. [Connecticut Agricultural Experiment Station, New Haven, USA] *Selective action of fungicides*—Fungicides are selectively active (a) between fungus and host, (b) between fungus and fungus, (c) between functions within the fungus, and (d) between analogues of the fungicide. (a) Selectivity between fungus and host usually results from differential permeation through host cuticle. (b) A fungicide may be able to injure many different vital processes, but its critical action against any one fungus may be at a single site. Cycloheximide, being selective, probably attacks all sensitive fungi by a single mechanism, while captan, being non-selective, appears to be toxic through its imide to *Stemphylium* and through its $-SCCl_3$ group to *Monilinia*. Karathane probably acts to accelerate leakage and, hence, is specific for powdery mildew which must retain water to survive. Pentachloronitrobenzene and chlordane reduce disease due to *Rhizoctonia* and increase disease due to *Pythium*. (c) Chelators and hexachloropropanol can selectively inhibit sporulation of several fungi without affecting growth. Most fungicides are selectively more toxic to spore germination than they are to growth, but the reverse is true for thiourea. (d) Substituting hydrogen for one methyl group of Na-dimethyldithiocarbamate changes the mode of action from toxicity via metal DDC ion complexes to some other action not yet clearly understood. Fungitoxicity of captan is related to reactions with biological thiols. Replacing the imide of captan with carbazole produces a compound whose fungitoxicity does not require reactions with biological thiols. Captan is usually fungistatic. Substituting 3,4-dichlorobenzene-sulfone for the imide of the molecule makes it fungicidal.

041a BANKS, H. P. [Cornell University, Ithaca, USA], HUEBER, F. M. [US National Museum, Washington, DC, USA], & LECLERCQ, S. [Université de Liège, BELGIUM] *A probable fern in the Lower Devonian*—Lower Devonian strata on the Gaspé Peninsula, in New Brunswick, and in northern Ontario, Canada, have provided both compressions and petrifications of a plant with relatively simple morphology and more complex anatomy. The suggested affinity of this plant is with the Coenopteridae.

041b PETTITT, J. M. [British Museum (Natural History) London, UK] *Heterospory in the genus Barinophyton*—The sporangial remains of *Barinophyton richardsoni* from the Upper Devonian of Perry, Maine, USA, have been found to contain microspores and megaspores. A new interpretation of the morphology of the fructification of this plant is offered to account for the occurrence of the two types of spores. The earliest record of the genus is from the Lower Devonian of North American but, unfortunately, nothing is known of the spores this plant produced.

The organization of the fertile parts of *Protobarinophyton obrutschewii* from the Lower Devonian of the USSR is clearly similar to that of *Barinophyton*. This plant however, differs from *Barinophyton* primarily in its dichotomous mode of branching; branching in *Barinophyton* is alternate. Attempts to obtain spores from the sporangia of the Russian fossil have proved unsuccessful.