

## SUMMARIES OF DOCTOR'S THESES

and of other Dutch papers which might escape attention because of their mode of publication

F. BOUMAN (H. de Vries - Laboratorium, Amsterdam): *Developmental studies of the ovule, integument and seed in some Angiosperms.*

Thesis, University of Amsterdam, privately issued (in offset printing) by the author (1974). Pp. 180, 107 figures (not all original) among which 27 reproductions of microphotographs.

### REVIEW

This thesis consists of three main parts, viz., of an exhaustive historical survey of the study of the structure and development of ovules and seeds (p.12-p.50) and some other introductory chapters (p.51-p.75), of digests (with some additions), of papers previously published by the author on integument initiation in representatives of the Juglandaceae, Liliaceae, Lactoridaceae, Magnoliaceae, and Winteraceae (p.76-p.118), and of original reports on integument and seed coat ontogeny in members of the Cruciferae, Euphorbiaceae, and Oxalidaceae (p. 119-p.160).

Some new data are reported: a subdermal initiation of the inner integument in Euphorbiaceae, the incidence of various types of initiation and histogenesis of integuments among the Cruciferae, the singular development of the vascular strands in the outer integument of *Lunaria*, and the unusual structure of the testa in seeds of species of *Oxalis* and *Biophytum* with a ballistic ejection mechanism of the seed accomplished by means of a preformed separation zone in, and the sudden rupture of the outer testa layers.

Previous descriptions of initiation types of integuments, of ovular histogenesis, and of seed coat maturation in the taxa studied are augmented and, where necessary, corrected or emended.

In the general discussion of this well-documented study the author emphasises the necessity of studying the *whole* ontogenetic sequence from early integument primordia to the mature seed coat before drawing any conclusions concerning the ultimate structure of the testa and before interpreting the various layers of the testa in the ripe seed in a comparative morphological or taxonomic context. A plea is made for the application of the mode of integument initiation and of testa development as criteria in detailed typifications (morphological classifications) of ovules and nucelli. The application of the ontogenetic and structural data in phylogenetic botany (among other things, as taxonomic pointers) is advocated, but a warning is sounded against the frequent misinterpretations and erroneous identifications of testa layers owing to an insufficient knowledge of the ontogenetic history of these structures (as so frequently occurred in the past).

The bibliography contains 265 references, but as a rule does not include publications already cited in DAVIS' *Systematic Embryology of the Angiosperms* (1966).

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A limited number of copies is available for *bona fide* interested parties who can apply to Prof. A. D. J. Meeuse (or to Dr. Bouman himself), Plantage Middenlaan 2a, Amsterdam A1-004.