one ordinary carboxylic group and one percarboxylic group ($\text{R} \begin{matrix} \text{COOH} \\ \text{CO.O.OH} \end{matrix}$) which readily lactonizes to

form a monolactonic monobasic acid, $\text{C}_{10}\text{H}_{14}\text{O}_6$, which is no longer a peracid, but contains the peroxygen atom in the lactone ring.

From *S. rosmarinifolius* Linn. a new alkaloid rosmarinine, $\text{C}_{18}\text{H}_{27}\text{O}_6$, has been isolated which yields on hydrolysis a new base rosmarinine, $\text{C}_8\text{H}_{15}\text{I}_3\text{N}$, and senecic acid, $\text{C}_{10}\text{H}_{14}\text{O}_4$. Rosmarinine has one double bond only, that is, the one present in senecic acid and which can be hydrogenated catalytically to the saturated dihydrosenecic acid.

S. pterophorus D.C. contains besides retrorsine a new alkaloid pterophine, $\text{C}_{18}\text{H}_{23}\text{O}_5\text{N}$, which can be hydrolysed to retronecine, $\text{C}_8\text{H}_{13}\text{O}_2\text{N}$, and pterophinecic lactone, $\text{C}_{10}\text{H}_{16}\text{O}_6$.

The Senecio species responsible for 'bread-poisoning' in human beings in the Cape south-western districts, namely, *S. ilicifolius* Thunb., contains three toxic alkaloids, senecionine, pterophine and retrorsine.

These alkaloids are all physiologically active and contain the pyrrole nucleus typical of other Senecio alkaloids. Details of these results will be published in the *Onderstepoort Journal* in due course.

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A Periclinal Division in the 'Dermatogen' at the Tip of the Maize Growing Point

THE accompanying photomicrograph and the cell-wall drawing show the periclinal division of a single isolated cell in the 'dermatogen' of a maize growing point (L.S.). In the more primitive vascular plants it has long been recognized that the outer layer of cells contributes to the central tissues of the apex by periclinal divisions. Recent workers have confirmed this for *Lycopodium*¹, and a number of *Gymnosperms*^{2,3,4,5}. The above case shows that even in the *Angiosperms*, and even at the extreme apex in these, periclinal divisions sometimes occur in the outermost cell layer.

In the case of the cell concerned, its general shape, its position high up on the apex, the well-vacuolated cytoplasm of the daughter cells and the lack of rapid anticlinal divisions in the cells on either side, clearly indicate that the division is an isolated one and is not in any way foreshadowing the initiation of a leaf primordium. Examination of the series (cut at 5μ) showed traces of the single division, at the same point in the cell, in at least three sections.

It is now generally agreed that there does not exist a dermatogen in the strict sense of the term as originated by Hanstein, since the outer layer often undergoes periclinal division during leaf formation.

In the *Dicotyledons* it may be involved in the production of the leaf edge, while in the *Monocotyledons* it is frequently concerned in the initiation of the leaves and often contributes considerably to their inner tissues (*Alstroemeria*⁶, *Orchis*⁷, *Dactylis*⁸, *Triticum*⁹, *Avena*¹⁰, and *Tradescantia*¹¹). In more than twenty species of grasses (that is, in every one I have so far studied) periclinal 'dermatogen' divisions play their part in leaf primordia initiation. So far, how-

ever, there does not seem to be any case recorded of the 'dermatogen' contributing to the inner tissues of the apex. The case illustrated shows that it does sometimes occur in *Angiosperms*: perhaps future observations will throw more light on this point.

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