

Preface and Acknowledgements

Ever since my colleague Albertine Champéroux, amid rows of rose bushes, initiated me into the fundamentals of histogenesis and plant organization, it has been for me a decade of passionate discovery of plant anatomy "through the half-open window of microcasting", after about thirty years working in other lines of research.

During this time, I was forced to perfect an original technique to study vessels, in the absence of sufficiently effective knowledge and mastery of the conventional histological techniques, and then to test it under highly varied conditions, in the hope of some original "lucky finds" in the field of vascular anatomy. For the freedom to pursue this research, I express my gratitude first of all to the Institut National de la Recherche Agronomique.

From the beginning, many people have given me the benefit of their assistance and their knowledge: I am pleased to acknowledge their help and testify to my active remembrance of them.

Since the first attempts at vessel casting in 1992, my colleague and friend Pierre Cruiziat expressed a sustained interest in the development and implementation of the technique, owing to his own researches in the circulation of water in the plant, and stimulated me by his curiosity and encouragement until the publication of this work. I owe a good part of the success of this development to the advice of René David, a specialist in archaeological casting, with whom I came into contact through a news article.

In Anne-Marie Catesson, I have had the good fortune to find the Master to whom I owe the essence of my deeper knowledge of plant anatomy and histology. Ever since my first visit to the Ecole Normale Supérieure, she has shown her interest in this unusual technique and given me her confidence and patient support. We collaborated in the study of the "heterogeneous vessels" revealed by casting in the abscission zones.

All the plants examined were provided voluntarily, the Solanaceae and bamboos by helpful regional producers, the cereals by the INRA laboratories, the ligneous species by the Jardin Thuret at Antibes, and the Guyanese

Pteridophytes by distant friends. The rest was obtained from the surrounding countryside.

I am grateful to Danielle Repoux, of the Ecole des Mines at Sophia Antipolis, and Lucien Roger, of INRA at Montpellier, who succeeded her, for having provided with competence and patience more than 150 hours of scanning electron microscopy facilities and produced more than 1500 images. All these images were then passed on to Christian Slagmulder, of INRA at Antibes. If the sumptuous, unanimously admired enlargements he developed from them had not constantly been in front of me, this work would certainly not have been undertaken.

In the final draft, I benefited greatly from suggestions from seven attentive reviewers, especially the most severe of them, my son Pascal, who also gave me a useful refresher on the basic techniques of the integral calculus.

Truth emerges more easily from error than from confusion, according to Francis Bacon. The hypotheses and hasty generalizations advanced in these pages are assumed in the hope that the wrong ones will be easily revealed.

Finally, I express my gratitude to the secretaries, readers, and artists for the care they took with the text, diagrams, and photographs and to the Service des Editions of INRA for having accepted and published this book.

Jean-Pierre André