CONTENTS

Preface	ix
Acknowledgements	xiii
SECTION 1. PALEOPEDOLOGY: SOME CONCEPTS AND DEFINITIONS	
ALAIN RUELLAN The History of Soils: Some Problems of Definition and Interpretation	3
I. P. GERASIMOV Nature and Originality of Paleosols	15
D. H. YAALON Soil-forming Processes in Time and Space	29
R. V. RUHE, G. A. MILLER and W. J. VREEKEN Paleosols, Loess Sedimentation and Soil Stratigraphy	41
SECTION 2. AGE ASSESSMENT BY RADIOMETRIC METHODS	
M.A GEYH, JH. BENZLER and G. ROESCHMANN Problems of Dating Pleistocene and Holocene Soils by Radiometric Methods	63
H. W. SCHARPENSEEL Radiocarbon Dating of Soils—Problems, Troubles, Hopes	77
H. A. Polach and A. B. Costin Validity of Soil Organic Matter Radiocarbon Dating: Buried Soils in Snowy Mountains, Southeastern Australia as Example	89

vi Contents

Radiocarbon Analyses of Soil Carbonates: An Evaluation from Paleosols in Southeastern Australia	97
RAFAEL HERRERA and M. A. TAMERS Radiocarbon Dating of Tropical Soil Associations in Venezuela	109
ZLATKO GRAČANIN Age and Development of the Hummocky Meadow (Buckelwiese) in the Lechtaler Alps (Austria)	117
MICHAEL J. CONRY and G. FRANK MITCHELL The Age of Irish Plaggen Soils	129
G. G. BECKMANN The Assessment of Relative and Absolute Ages of Soils—Illustrated by Some Hawaiian Paleosols	139
SECTION 3. NATURE AND ORIGIN OF PALEOSOLS	
Subsection 3a. Criteria and Techniques	
WORKING GROUP ON THE ORIGIN AND NATURE OF PALEOSOLS Criteria for the Recognition and Classification of Paleosols	153
N. FEDEROFF The Usefulness of Micromorphology in Paleopedology (Summary)	159
MARIO E. TERUGGI and RENATO R. ANDREIS Micromorphological Recognition of Paleosolic Features in Sediments and Sedimentary Rocks	161
E. M. SAMOYLOVA Some Relict Signs in Contemporary Soils of the Tambov Lowland, U.S.S.R.	173
Adnan Hardan Archaeological Methods for Dating Soil Salinity in the Mesopotamian Plain	181
Subsection 3b. Development Sequences	
STUART A. HARRIS Podsol Development on Volcanic Ash Deposits in the Talamanca Range, Costa Rica	191

Contents	vii
ROBERT J. NOVAK, HARRY L. MOTTO and LOWELL A. DOUGLAS The Effect of Time and Particle Size on Mineral Alteration in Several Quaternary Soils in New Jersey and Pennsylvania, U.S.A.	211
SECTION 4. DISTRIBUTION AND NATURE OF PALEOSOLS	
Subsection 4a. Paleosols in Quaternary Rocks	
H. S. Gibbs Nature of Paleosols in New Zealand and Their Classification	229
J. DAN and D. H. YAALON On the Origin and Nature of the Paleopedological Formations in the Coastal Desert Fringe Areas of Israel	245
R. PAEPE Dating and Position of Fossil Soils in the Belgian Pleistocene Stratigraphy	261
A. Bronger Zur Genese and Verwitterungsintensität Fossiler Lössböden in Jugoslawien	271
A. GUERRA and J. BENAYAS Phenomena of Iron Mobilization Overlying Buried Alfisols in Some Soils of Central Spain	283
P. C. BEUKENKAMP and J. SEVINK Paleosols in the Volcanic Region of the Velay (Central Massif, France)	293
G. BOUTEYRE Quelques Réflexions sur les Paléosols en Languedoc (France)	301
Subsection 4b. Paleosols in Older Sedimentary Rocks	
G. ROESCHMANN Problems Concerning Investigations of Paleosols in Older Sedimentary Rocks, Demonstrated by the Example of Wurzelböden of the Carboniferous System	311
DIETER ORTLAM Paleosols and Their Significance in Stratigraphy and Applied Geology in the Permian and Triassic of Southern Germany	321

viii	Contents

W. G. SOMBROEK Ancient Levels of Plinthisation in N.W. Nigeria	329
List of Participants	339
Author Index	34
Subject Index	347