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**FUTURE DEVELOPMENTS IN
SOIL SCIENCE RESEARCH**

FUTURE DEVELOPMENTS IN SOIL SCIENCE RESEARCH

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Foreword

At their annual meetings in Washington, DC, Nov. 17-20, 1936, the Soils Section of the American Society of Agronomy and the American Soil Survey Association decided to merge and form the Soil Science Society of America. Upon the union of these two organizations, SSSA Proceedings began to be published. The Preface to Volume I notes that "it is hoped that this new publication will present each year a fairly complete picture of current American thought on all phases on soil science."

Fifty volumes of the Proceedings have now been published. During these 50 years many changes have taken place in soil science, all recorded in those volumes. Many of the problems that were important 50 years ago remain today. It is instructive to read the papers in Volume I of the Proceedings with the knowledge and understanding of today. S. F. Thornton wrote the paper "Root Solubility of the Essential Elements in the Soil as an Indication of Availability." Today, the study of the rhizosphere is of great interest. Admittedly, 50 years after this paper was published, we still know little about the details of the physical and chemical processes at the interface between root surface and soil particles. Several papers deal with mechanical and mineralogical analysis of soils. It is only recently that methods of particle size analysis are being improved with new instrumentation. L. A. Richards and O. R. Neal wrote "Some Field Observations with Tensiometers," and we must admit that we still have not developed the "ideal" device for the measurement of soil water potential or soil water content in the field. L. B. Baver wrote about "Soil characteristics influencing the movement and balance of soil moisture."

During the past 50 years, we have obtained a better understanding of the complexity of the physics, chemistry, and microbiology of soil systems. Now, during this time of rapid changes in science, standing at the threshold of the next 50 years in the life of our Society, we consider the important research needs for the future. Meeting speakers were asked to address future developments in soil science research at the Golden Anniversary meeting in December at New Orleans, LA. This publication is a record of these presentations.

It is clear that the future is forcing itself upon us with dramatic impact. The business of soil science is changing at a rapid rate. Experimental developments and equipment provide much of the impetus of renewed study of old problems. New insights are gained. The use of mathematical models, in particular, is forcing many changes.

Soil Science is now less discipline oriented than in the past. Fifty years ago, divisional groupings were clear and soil science was clearly the domain of soil scientists. Now divisional separations are more diffused, but at the same time, scientists from other disciplines enter the arena where soil scientists have

functioned in the past. We must ask ourselves the following questions, "Will the study of solute transport through soils be implemented by engineers or by soil scientists?", "Will it be the plant physiologist with training in mathematics who models the behavior of roots in soils and studies the interactions between the soil, the plant, and the atmosphere, or will it be the soil scientist?", and "Will it be microbiologists who evaluate the application of genetically engineered organisms in soils, or will the scientists who lead these efforts come from our own ranks?" These questions are important for all of us to consider. The expectation is that the thoughts expressed in these papers may alert us to the future.

We thank the invited speakers for their efforts in focusing attention on future developments. Readers should carefully evaluate what they say in the limited time and space available to them. Much more could have been said. It is up to each individual member of the society to pick up the gauntlet laid before them by these speakers and march with it.

Larry Boersma, President, 1987
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