

**THE ELEMENTS OF
AGRICULTURAL
GEOLOGY FOR THE
SCHOOLS OF KANSAS**

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The Elements of Agricultural Geology for the Schools of Kansas by Wm. K. Kedzie

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WM. K. KEDZIE

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THE
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FOR THE SCHOOLS OF KANSAS

BY
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PREFACE.

THE preparation of this little work, has been undertaken at the very urgent solicitation of the State Superintendent of Public Instruction, and at that of other prominent educational workers. Two objects have been held in view:

First: To place in the hands of teachers a book which would enable them to meet the requirements for the "A" certificate, as given in Article VI, Section 6, of the Session-laws of 1876, which requires, among other things, that the applicant shall be familiar with "the elements of geology, so far as relates to the manner of formation of soils and their adaptation to purposes of production."

Second: To arrange the work for use in the instruction of the more advanced pupils of the common schools.

To the latter end, it has seemed best to keep the book entirely simple and untechnical in its character and language. Common names are therefore preferred to technical terms, and the latter, as a rule, are only used parenthetically. The wants of *Kansas* teachers and students have been regarded above all else; and special attention

has been given to the geology, mineral resources, and farm soils of this State.

At the outset of the work, the author was, very naturally, embarrassed by the fact that, although knowing of no book having similar objects in view, much of the work had already been notably performed, in different fields, by Professors J. D. Dana and S. W. Johnson. The author, therefore, addressed these gentlemen, stating the case, and received from them full permission to make such use of their writings as might be found necessary to the ends in view. It will only be necessary, then, to state explicitly that most of the elementary geology, in Part First, is based upon Professor Dana's "Manual of Geology;" and that much of the origin and classification of soils, in Part Second, is founded on the chapter on soils, in Professor Johnson's "How Crops Feed."

The author desires also to express his obligations to Professor B. F. Mudge, Judge F. G. Adams, General John Fraser; and, above all, to Professor Orestes St. John, for many kind suggestions; also, to Hon. Alfred Gray, for use of the geological map of the State.

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NOTICE TO TEACHERS.

WHEREVER possible, teachers should construct a map of the school-district or township in which the study is being pursued, with a careful designation and description of the rock strata. A collection of these rocks, and of the soils adjoining them, should be made also, as it will frequently prove of much assistance in pointing out the relations which exist between soils and the rocks from which they have been derived.

As will be seen, this book has been written on the supposition that an abundance of specimens, both of soils and of the minerals composing them, will be placed in the hands of the pupils studying it. Such specimens are very important, both for a perfect understanding of the subject, and for the interest which they excite.

Many specimens of soils, and a small portion of the minerals, can be obtained in almost any locality in Kansas. It may not always be possible, however, to obtain a satis-