

**OUT OF DOOR STUDIES IN
GEOGRAPHY: II, THE
FORMATION OF MOUNTAIN
RANGES;
A STUDY OF THE SIERRA NEVADA**

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Out of Door Studies in Geography: II, The Formation of Mountain Ranges; A Study of the Sierra Nevada by Francis M. Fultz

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FRANCIS M. FULTZ

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OUT OF DOOR STUDIES IN GEOGRAPHY

II

The Formation of Mountain Ranges

A STUDY OF THE SIERRA NEVADA

By
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PREFACE

The cordial reception of the first book in "Out of Door Studies in Geography" by teachers and students of the subject and its success in the class room have led to the early putting forth of this second one of the series.

This book is devoted to the purpose of trying to make clear the processes in mountain making and to the endeavor of conveying a truthful understanding of the actual conditions existing in a typical mountain range.

As in the first book, difficult, scientific terms and phrases are avoided wherever possible. Also the descriptions have been written with the intention of making them easily read by grammar grade pupils.

All the illustrations are from photographs, many of them taken expressly for this purpose. Excepting where credit is otherwise given, the photographs were taken by the author.

While what the book contains is largely out of the author's own experience and study, yet acknowledgment is due Prof. Joseph N. LeConte, of the University of California, for valuable information and data.

FRANCIS M. FULTZ.

Burlington, Iowa, March 1, 1909.

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1. A VIEW IN THE HIGH SIERRA.

Mt. Ritter (in the center), Rodgers Peak (on the right) and Banner Mountain (to the left of Ritter). Mt. Ritter and Rodgers Peak are both over 13,000 feet, and Banner Mountain very nearly 13,000 feet. This region lies about twenty-five miles east of the Yosemite Valley. It is one of the wildest and most rugged parts of the Sierra. This picture was taken from the summit of Mt. Lyell, another mountain over 13,000 feet.

A STUDY OF MOUNTAINS.

INTRODUCTION.

By far the larger number of all the people of the earth live on the plains, or on the plateaus bordering the mountains. A very much smaller number live in the valleys. Comparatively few live in the narrow mountain valleys and on the mountains themselves. So, most people do not think

of the mountains as a desirable place to make homes. It is true many people are interested in them, but for the most part it is because they enjoy spending their vacation there during the hot summer months, or that they like to go there to hunt and to fish.

Those who visit the mountains can-

not help but notice the folded and crumbled strata, the tilted layers, the great fissures, the veins and dikes, and the long slopes of loose rock material. But to most of them these things do not have the same interest as do the swift, clear streams with their cascades and waterfalls, or the deep gorges and the towering peaks. Yet these are the very things that tell us how mountains were made. So I hope when you visit the mountains you will look for them. If you do, you will find them, and your mind will soon be busy with a thousand questions, the answers of which will bring you far greater pleasure than the mere vision of towering peaks and deep canyons. It is enchanting to visit the cascades

and waterfalls; it is awe-inspiring to look into the deep canyons; it is exciting to climb the rock crags; it is glorious to view from some high peak a wide expanse of mountain and plain. But to be able to read the history of it all gives a deeper and more enduring pleasure.

Mountains are formed either by material thrown out of the interior of the earth by volcanic action; or through the elevation of the earth's surface by forces within the earth. The peaks and ridges, the canyons and valleys, and the other features which give mountains such a rugged surface, are the work of the tearing-down forces.