

# SCIENCE

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THE ORIGIN OF THE THERMAL WATERS IN  
THE YELLOWSTONE NATIONAL PARK<sup>1</sup>

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## INTRODUCTION

FROM the earliest days of systematic geological research thermal springs have been a frequent subject of investigations by students of natural phenomena. From time to time numerous contributions to scientific literature bearing upon the nature of hot springs, partly descriptive and in part theoretical, have been presented to learned societies. Nearly all regions where such waters issue from the ground on an imposing scale appear to have been at one time or another scenes of eruptive energy. In so many instances has this been shown to be the case that thermal activity and volcanic manifestation have come to be regarded as associated phenomena. It by no means follows, however, that the original source of all these waters was, geologically speaking, deep-seated, and by a large school of geologists it has never been so regarded. In recent years the results of several suggestive researches have been published, in which the position is taken that superheated waters from igneous rocks are primitive in their origin; that is to say, they are derived from great depths in the earth's crust and are brought to the surface for the first time by volcanic forces.

The Yellowstone National Park affords one of the most remarkable, and probably one of the most instructive areas of thermal springs and geysers to be found in the world. The varied phenomena of boiling springs and aqueous vapors there stand unsurpassed. Several years ago, after a

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