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FRIDAY, JANUARY 3, 1896.

## CONTENTS:

<i>The Origin of Hypotheses, Illustrated by the Discussion of a Topographic Problem:</i> G. K. GILBERT (with Plates I. and II.).....	1
<i>Some Fundamentals of Nomenclature:</i> EDW. L. GREENE.....	13
<i>Impressions of the Naples Zoological Station:</i> T. H. MORGAN.....	16
<i>Annual Meeting of the American Mathematical Society:</i> THOMAS S. FISKE.....	18
<i>Current Notes on Anthropology:—</i> <i>Researches in South American Languages; The Anthropology of Women:</i> D. G. BRINTON.....	19
<i>Scientific Notes and News:—</i> <i>Experiment Stations for Engineering; The British Museum; Astronomical; General</i> .....	20
<i>University and Educational News</i> .....	23
<i>Scientific Literature:—</i> <i>Shenstone's Life of Liebig; Behren's Organische Verbindungen:</i> IRA REMSEN. <i>Morley on the Densities of Oxygen and Hydrogen:</i> W. A. NOYES. <i>Eimer's Evolution of Butterflies:</i> C. S. MINOT. <i>Headley's Structure and Life of Birds:</i> F. A. LUCAS; <i>The Beginnings of Writing:</i> LIVINGSTON FARRAND.....	24
<i>Scientific Journals:—</i> <i>Journal of Geology; American Journal of Science; School of Mines Quarterly</i> .....	31
<i>Societies and Academies:—</i> <i>New York Academy of Sciences:</i> BASHFORD DEAN, J. F. KEMP. <i>Biological Society of Washington:</i> F. A. LUCAS. <i>Anthropological Society of Washington. Entomological Society of Washington. St. Louis Academy of Science:</i> A. W. DOUGLAS.....	33

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## THE ORIGIN OF HYPOTHESES, ILLUSTRATED BY THE DISCUSSION OF A TOPOGRAPHIC PROBLEM.\*

AN important part—in some respects the most important part—of the work of science is the explanation of the facts of Nature. The process through which natural phenomena are explained is called the 'method of hypotheses,' and though it is familiar to most of my audience I shall nevertheless describe it briefly for the purpose of directing special attention to one of its factors.

The hypothesis has been called a 'scientific guess,' and unless the title 'guess' carries with it something of disrespect it is not inappropriate. When the investigator, having under consideration a fact or group of facts whose origin or cause is unknown, seeks to discover their origin, his first step is to make a guess. In other words, he frames a hypothesis or invents a tentative theory. Then he proceeds to test the hypothesis, and in planning a test he reasons in this way: If the phenomenon was really produced in the hypothetic manner, then it should possess, in addition to the features already observed, certain other specific features, and the discovery of these will serve to verify the hypothesis. Resuming

\* Annual Address of the President of the Geological Society of Washington; read December 11, 1895, to the Scientific Societies of Washington. By special arrangement, through the Joint Commission of those societies, this number of SCIENCE is mailed to all members.

# Science

**3 (53)**

*Science* **3** (53), 1-36.

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