SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Friday, September 25, 1908

CONTENTS

The Address of the President of the British Association for the Advancement of Science: Dr. Francis Darwin ........... 385

The Analyst, the Chemist and the Chemical Engineer: Dr. W. D. Richardson ......... 396

Presentation to Professor Goldschmidt ...... 402

Scientific Notes and News .................. 403

University and Educational News ........... 406

Discussion and Correspondence:—

The Teaching of Mathematics to Students of Engineering: Dr. Charles S. Palmer.
Hummingbird and Hornet: Charles W. Mead ......................... 407

Quotations:—

The New British Patents Act ................ 409

Scientific Books:—

Lloyd on the Physiology of the Stomata:
C. Shaad ........................................ 409

Scientific Journals and Articles .......... 411

Lithium in Radioactive Minerals ........... 412

Special Articles:—

On the Orbitosphenoid in Some Fishes:
Dr. Edwin Chapin Stares. An Explanation of the Cause of the Eastward Circulation of Our Atmosphere: Dr. J. M. Schaeberle ........................................ 413

THE ADDRESS OF THE PRESIDENT OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE—II.

HABIT ILLUSTRATED BY MORPHOLOGY

We have hitherto been considering the mnemonic quality of movements; but, as I have attempted to show, morphological changes are reactions to stimulation of the same kind as these temporary changes. It is indeed from the morphological reactions of living things that the most striking cases of habit are, in my opinion, to be found.

The development of the individual from the germ-cell takes place by a series of stages of cell-division and growth, each stage apparently serving as a stimulus to the next, each unit following its predecessor like the movements linked together in an habitual action performed by an animal.

My view is that the rhythm of ontogeny is actually and literally a habit. It undoubtedly has the feature which I have described as preeminently characteristic of habit, viz., an automatic quality which is seen in the performance of a series of actions in the absence of the complete series of stimuli to which they (the stages of ontogeny) were originally due. This is the chief point on which I wish to insist—I mean that the resemblance between ontogeny and habit is not merely superficial, but deeply seated. It was with this conclusion in view that I dwelt, at the risk of being tedious, on the fact that memory has its place in the morphological as well as in the temporary reac-
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**
Visit the online version of this article to access the personalization and article tools:
http://science.sciencemag.org/content/28/717.citation

**Permissions**
Obtain information about reproducing this article:
http://www.sciencemag.org/about/permissions.dtl