

SCIENCE

FRIDAY, MARCH 19, 1920

CONTENTS

<i>Constructive Scientific Research by Cooperation</i> : PROFESSOR BURTON E. LIVINGSTON...	277
<i>Suggestions for Ecologic Investigations in Vertebrate Zoology</i> : WALTER P. TAYLOR...	283
<i>The Attainment of High Levels in the Atmosphere</i> : PROFESSOR ALEXANDER MCADIE.	287
<i>The Separation of the Element Chlorine into Chlorine and Meta-chlorine</i> : PROFESSOR WILLIAM D. HARKINS	289
<i>Wilhelm Pfeffer</i> : G. J. P.	291
<i>Scientific Events</i> :—	
<i>The Organization of Scientific Work in India; Portland Cement in 1919; The Investigation of Fatigue Phenomena in Metals</i> ...	292
<i>Scientific Notes and News</i>	294
<i>University and Educational News</i>	295
<i>Discussion and Correspondence</i> :—	
<i>Ionization and Radiation</i> : PROFESSOR H. M. DADOURIAN. <i>How did Darwin work?</i> PROFESSOR T. D. A. COCKERELL. <i>A Convenient Demonstration Mounting for Jellyfishes</i> : N. M. GRIER	296
<i>Organization of the American Geophysical Union</i> : DR. HARRY O. WOOD	297
<i>Special Articles</i> :—	
<i>Is Unpalatable Food Properly digested?</i> RALPH C. HOLDER, CLARENCE A. SMITH, PHILIP B. HAWK	299
<i>The Western Society of Naturalists</i> : JOHN F. BOVARD	299
<i>The American Mathematical Society</i> : PROFESSOR F. N. COLE	300

CONSTRUCTIVE SCIENTIFIC RESEARCH BY COOPERATION¹

It has been occasionally suggested that one of the reasons for the slow advance of science lies in the fact that scientific research problems are still generally attacked by individuals or by small, local groups of workers influenced by a single individual, rather than by planned cooperation among a number of workers in different institutions. Individualistic research has been characterized, by the late Professor C. E. Bessey, as a kind of guerilla warfare upon the unknown. As in other lines of human activity, it seems highly desirable to outgrow this kind of attack, just as rapidly as the appeal of well-planned campaigns and the desire for a maximum of service to race advancement makes itself felt by scientific workers. Commercial research is now frequently carried on in this way, different individuals being actually paid for studying certain aspects of a broad problem and for bringing their minds to bear upon it in a cooperative way. The more fundamental aspects of scientific investigation and the clearing up of the broader, general principles of science have not usually been approached in this manner; the extremely individualistic methods of the Middle Ages seem still to be in vogue.

This state of affairs in science is sometimes thought to be due to the supposed fact that an investigator can not confine himself to what he starts out to study, but that he is constrained, by the nature of investigation itself, to follow his evanescent interests and caprices wherever they may lead. But the scientific researches undertaken and carried out by large commercial establishments and also, especially, those that were so remarkable furthered by preliminary planning and a division of work,

¹ Prepared by request of the chairman of the Division of Biology and Agriculture of the National Research Council.

Science

51 (1316)

Science 51 (1316), 277-300.

ARTICLE TOOLS

<http://science.sciencemag.org/content/51/1316.citation>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 1920 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.