

SCIENCE

VOL. LXX

FRIDAY, AUGUST 23, 1929

No. 1808

<i>The Rôle of Physics in Modern Industry:</i> DR. L. O. GRONDAHL	175	<i>Scientific Apparatus and Laboratory Methods:</i> <i>A Safety Razor Blade which Cuts as Well as the Best Microtome Knives:</i> PROFESSOR ALFRED F. HUETTNER. <i>Another Petrographic Method:</i> DR. R. C. EMMONS	196
<i>Obituary:</i> <i>Captain Charles Frederick Silvester:</i> PROFESSOR CHARLES F. W. MCCLURE. <i>Recent Deaths</i>	183	<i>Special Articles:</i> <i>A Method of Determining the Axial Ratio of a Crystal from X-ray Diffraction Data: The Axial Ratio and Lattice Constants of Zinc Oxide:</i> DR. M. LUTHER FULLER	196
<i>Scientific Events:</i> <i>Bird Sanctuaries in London; The Investigation of Air Pollution at the Mellon Institute; The Des Moines Meeting of the American Society of Zoologists and the Section of Zoological Sciences of the American Association; The Nineteenth International Congress of Physiology</i>	185	<i>The North Carolina Academy of Science:</i> H. R. TOTTEN	198
<i>Scientific Notes and News</i>	188	<i>Science News</i>	x
<i>University and Educational Notes</i>	191		
<i>Discussion:</i> <i>A Note on the Association of Diseases:</i> PROFESSOR RAYMOND PEARL. <i>Parthenogenesis and Polyembryony in <i>Alnus rugosa</i>:</i> ROBERT H. WOODWORTH. <i>A Bombarding <i>Dicaelus</i> Beetle:</i> P. W. FATIG	191		
<i>Quotations:</i> <i>The Seventieth Birthday Anniversary of Theobald Smith</i>	193		
<i>Scientific Books:</i> <i>Henderson and Davie on Incomes and Living Costs of a University Faculty:</i> DR. JOSEPH JASTROW.....	194		

THE RÔLE OF PHYSICS IN MODERN INDUSTRY

By Dr. L. O. GRONDAHL

UNION SWITCH AND SIGNAL COMPANY, SWISSVALE, PENNSYLVANIA

IN speaking of the rôle of physics in industry, I shall dwell on its accomplishments in the way of making itself useful to the engineer, to the factory operator and to the public generally. As I shall point out incidentally, the service is not one-sided, and an interesting chapter could be written on the service of industry to physics and to other sciences. It is hoped that this will be remembered if at some times I appear to get enthusiastic and to claim too much for the science which is my hobby. To give a glimpse of the other side of the picture, I shall first proceed to make an acknowledgment of the great debt that physics owes to industry and which was incurred before either industry or the science was organized.

Physics originated in the arts and crafts of prehistoric and early historic times. The students and philosophers of those days played no part in the beginnings of the science since they thought of their

activities as being on a different plane from the activities of those who labored with material things and were not inclined to interest themselves in anything of a physical nature except philosophically. They attempted to arrive at an understanding of nature by speculation. This attitude made it impossible for them to learn of the characteristics of things from experience. Soldiers, sailors, shepherds, craftsmen, builders and others who had to do with physical things were the ones who not only developed an acquaintance with physical characteristics, but who also learned to apply principles that were not formulated, but were useful, and that later became the foundation of physics.

These workmen learned how to do many things that have been the bane of the existence of young students ever since physics became a part of the curriculum. They learned to use the lever or the inclined

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. MCKEEN CATTELL and published every Friday by

THE SCIENCE PRESS

New York City: Grand Central Terminal

Lancaster, Pa.

Garrison, N. Y.

Annual Subscription, \$6.00

Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

Science

70 (1808)

Science **70** (1808), x-198.

ARTICLE TOOLS

<http://science.sciencemag.org/content/70/1808.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. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.