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SOME PHYSICAL PROBLEMS IN THE FIELD OF MEDICINE¹

CONTENTS

<i>Some Physical Problems in the Field of Medicine:</i> PROFESSOR HORATIO B. WILLIAMS	505
<i>The Mechanism of Spark Discharge in Air at Atmospheric Pressure:</i> PROFESSOR LEONARD B. LOEB	509
<i>Research at Mellon Institute:</i> DR. LAWRENCE W. BASS	512
<i>Scientific Events:</i>	
<i>The Italian Academy; Explorations in Alaska; The New Policies of the Indian Bureau; A Homeopathic Medical Center; Professional Salaries</i>	513
<i>Scientific Notes and News</i>	515
<i>University and Educational Notes</i>	519
<i>Discussion:</i>	
<i>Ambitious Agronomy:</i> DR. K. F. KELLERMAN. <i>The European Starling in Illinois:</i> DR. FRANK COLLINS BAKER. <i>Dispersed Stages of the Stigma in Euglena:</i> R. P. HALL and T. L. JAHN. <i>Vibrations and Particles:</i> PROFESSOR W. H. PICKERING	520
<i>Quotations:</i>	
<i>The Centenary of the London Zoological Garden</i>	523
<i>Scientific Apparatus and Laboratory Methods:</i>	
<i>An Apparatus for the Study of Mat-forming Fungi in Culture Solutions:</i> RAIMUND H. MARLOTH	524
<i>Special Articles:</i>	
<i>Strains of the Dog Hookworm:</i> DR. J. ALLEN SCOTT. <i>Hetero-fertilization in Maize:</i> GEORGE F. SPRAGUE	526
<i>The National Academy of Sciences</i>	527
<i>Science News</i>	x

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It is not so very many years ago that the well-educated physician, as a gentleman of broad culture, was expected to possess an easy familiarity with the entire field of natural science as well as a training in the disciplines of the ancient classics and the gems of modern literature. I need only remind you that one of the leading physicists of the preceding generation, Hermann von Helmholtz, was at the beginning of his career a physician. The famous essay on the "Erhaltung der Kraft" was published in 1847 while he was still on active duty in the German army as a military surgeon. After a brilliant career as a professor of physiology, he finally became professor of physics at the University of Berlin. His activities in that capacity and the record of the brilliant pupils whose work he stimulated are well known to all of you. I mention this example to indicate the magnitude of the change which less than half a century has wrought in the subject of physics. It is no longer possible for the medical man to be a master in the fundamental sciences, physics and chemistry. The very existence of the Optical Society evidences the increasing content of a single branch of physics. Moreover, the fact that in the meetings of the Physical Society we now have groups of papers on related subjects presented before sections of the society, emphasizes the difficulty of keeping up with the progress of the science. When the professional physicist is obliged to admit that he experiences difficulty in understanding the content of papers which deal with matters outside the particular field of his personal research activity, it will be readily appreciated that never again may we expect to see a physician possessed of such breadth of culture in this branch of science as Helmholtz had unless it may become possible through some trenchant generalization which shall bring back comparative simplicity. As a matter of fact I do not visualize the future of natural science as a labyrinth of ever-increasing complexity. Each new generation starts off with the best of what its predecessors possessed and does not hesitate either from habit or sentiment to discard what seems less fit to serve its purpose. We who are older have accumulated a miscellaneous lot of

¹ Read before a joint meeting of the American Physical Society and the Optical Society of America, at Columbia University, New York, February 23, 1929.

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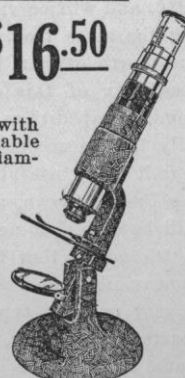
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