

SCIENCE

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CONTENTS

<i>The Physiology of the Aviator:</i> PROFESSOR YANDELL HENDERSON	431
<i>A New Deposit of Uranium Ore:</i> S. C. LIND AND C. W. DAVIS	441
<i>Scientific Events:—</i>	
<i>Conference on High-school Biology; Ap- pointments at Harvard University; The National Academy of Sciences</i>	443
<i>Scientific Notes and News</i>	445
<i>University and Educational News</i>	447
<i>Discussion and Correspondence:—</i>	
<i>Apropos of the Proposed Historical Science Section:</i> PROFESSOR G. A. MILLER. <i>Vitamin Tests with Chicks:</i> R. J. SEYMOUR AND E. P. DURRANT	447
<i>Quotations:—</i>	
<i>The British Air-force Estimates and Aero- nautical Research</i>	448
<i>Scientific Books:—</i>	
<i>Ritter on Description, Definition and Classi- fication in Philosophical Biology:</i> WALTER P. TAYLOR	449
<i>Special Articles:—</i>	
<i>To cut off Large Tubes of Pyrex Glass:</i> PROFESSOR CHARLES T. KNIPP	450
<i>The Illinois State Academy of Science:</i> J. L. PRIGER	451

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THE PHYSIOLOGY OF THE AVIATOR¹

DOUBTLESS you have all read the delightful historical accounts by the late Admiral Mahan of the great naval battles of the eighteenth century, when France and England struggled for the mastery of the sea. You will recall the stress laid on the weather gauge, or windward position. If the wind blew from the eastward, as does the "northeast trade" among the Caribbean Islands where a great part of the struggle occurred, whichever admiral was able so to maneuver as to be to the east of his enemy obtained a great, and often a decisive, advantage. He could choose the time and mode of attack, while his antagonist was compelled to remain on the defensive, unable either to force the fighting or to escape it.

In modern naval warfare the position of the sun in relation to the enemy's fleet affects the accuracy of aim. The speed of the ships is of importance equalling that of their gunfire. But there is no element of position which quite corresponds to that of the weather gauge for a fleet under sail.

In the battles of the ships of the air, however, there is again a condition which corresponds quite closely to the tactical advantage of maneuvering between the wind and the enemy. In this case it is not a direction in the plane of the horizon, except so far as light is important; but it is the direction at right angles, vertical to this plane. It is the upper position—the advantage obtained by him who can climb above his enemy, and, choosing the moment

¹ Address before the Harvey Society, New York City, March 22, 1919.