

SCIENCE

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CONTENTS

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|---|-----|
| <i>Multiplex Telephony and Telegraphy over Open-circuit Bare Wires laid in the Earth or Sea: MAJOR GENERAL GEORGE O. SQUIER.</i> | 445 |
| <i>Research in the Psychology of Aviation during the Year 1919: CAPTAIN HARRY M. JOHNSON</i> | 449 |
| <i>General Biology and the Junior College: PROFESSORS LEONAS L. BURLINGAME AND ERNEST G. MARTIN</i> | 452 |
| <i>Francis C. Phillips: PROFESSOR ALEXANDER SILVERMAN</i> | 455 |
| <i>Scientific Events:—</i> | |
| <i>Bird-banding Work being taken over by the Biological Survey; The Pacific Coast Division of the American Association for the Advancement of Science; The Resignation of the Director of the Bureau of Mines; The Resignation of Professor E. L. Nichols from the Yale University Faculty; The Allegheny Observatory</i> | 456 |
| <i>Scientific Notes and News</i> | 459 |
| <i>University and Educational News</i> | 462 |
| <i>Discussion and Correspondence:—</i> | |
| <i>Singing Sands: ALBERT R. LEDOUX. Modern Interpretation of Differentials: PROFESSOR ARTHUR S. HATHAWAY. Carbon Dioxide and Increased Crop Production: PROFESSOR BENJAMIN HARROW. Structural Blue in Snow: DR. JEROME ALEXANDER</i> | 462 |
| <i>Scientific Books:—</i> | |
| <i>Haskell on Graphic Charts: DR. R. VON HUHN</i> | 466 |
| <i>Special Articles:—</i> | |
| <i>The Heredity of Susceptibility to a Transplantable Sarcoma of the Japanese Waltzing Mouse: DR. C. C. LITTLE</i> | 467 |
| <i>The American Association of Petroleum Geologists</i> | 468 |
| <i>The American Association for the Advancement of Science:—</i> | |
| <i>Minutes of the Executive Committee of the Council: PROFESSOR BURTON E. LIVINGSTON.</i> | 470 |

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MULTIPLEX TELEPHONY AND TELEGRAPHY OVER OPEN-CIRCUIT BARE WIRES LAID IN THE EARTH OR SEA¹

INTRODUCTION

THE "key problem" in the procurement of essential Signal Corps supplies in the United States during the World War, curiously enough turned out to be the production of the necessary braiding machines for finishing insulated wire. The bare wire itself could be obtained, the rubber insulation could be obtained, even the cotton thread with which the braiding was made could be obtained, but the necessary machinery for braiding the thread, which finally led us into the intricacies of the procurement of steel, was never anything like adequate for the enormous demands required in the field.

The braiding capacity of the entire United States, as of September 1, 1918, was about 8,000 miles of twisted pair insulated wire per month, while the requirements for the American forces alone at that date were about 40,000 miles a month. On October 1, 1918, the Allied Council reached the decision that beginning March 1, 1919, it would be necessary for the United States to furnish all of this type of wire used by the Allied armies in the field, and the estimated minimum requirements for this purpose were equivalent to four times around the earth a month. To supply this amount of insulated wire would have required cargo space for overseas

¹ Abstract of paper presented to the National Academy of Sciences at the session held at the National Museum, April 27, 1920.