## SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

## FRIDAY, JANUARY 4, 1907

| CONTENTS  |    |
|---|----|
| The American Association for the Advancement of Science:—   |    |
| Fact and Theory in Spectroscopy: Pro-<br>FESSOR HENRY CREW  | 1  |
| Some Problems connected with Deep Mining in the Lake Superior Copper District: PRESIDENT F. W. McNair   | 13 |
| Why has the Doctrine of Laissez-faire been abandoned: Professor Irving Fisher   | 18 |
| Scientific Books:—  Carver on Sociology and Social Progress: PROFESSOR LESTER F. WARD. Le Double on Variations of the Bones of the Face: PROFESSOR THOMAS DWIGHT. Böttger's Amerikanisches Hochschulwesen: Dr. Arthur A. Blanchard. | 27 |
| Scientific Journals and Articles  | 30 |
| Societies and Academies:—  The Geological Society of Washington: A. C. Spencer  | 31 |
| Discussion and Correspondence:—  The Carnegie Foundation: T. C. M. Is there Determinate Variation: DB. T. D. A. COCKERELL   | 33 |
| Special Articles:—  The Advancing Malaspina Glacier: Professor Ralph S. Tarr  | 34 |
| Scientific Notes and News   | 37 |
| University and Educational News   | 40 |

MSS, intended for publication and books, etc., intended for review should be sent to the Editor of Science, Garrison-on-Hudson, N. Y. THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE FACT AND THEORY IN SPECTROSCOPY!

Before passing to some present problems in physics, let us pause a moment to consider the losses which our science has sustained since the last annual meeting.

The life and work of Professor Langley, who died on the twenty-seventh of February last, will long continue to form an important chapter in the history of astro-To the study of this science he physics. brought rare skill, perseverance and clearness of purpose. Among his most important contributions is to be mentioned his epoch-making determination of the distribution of energy through the spectra of various sources, including especially the sun. moon and firefly. His measurement of the lifting power of an aeroplane driven at a definite angle with a definite speed, his exquisite discussion of the 'Internal Work of the Wind' with its accompanying explanation of soaring and his still later achievement of actual flight are matters which have perhaps only recently received fair appreciation. The recent performance of the Wright brothers in Ohio and the flight of Santos Dumont in a 'manned' machine are but two events in the logical series which Professor Langley did much to initiate.

On the nineteenth of April, 1906, occurred a great tragedy. Nothing in the behavior of that remarkable element which

<sup>&</sup>lt;sup>1</sup>Vice-presidential address before Section B of the American Association for the Advancement of Science, New York, December 28, 1906.