

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.

EDITORIAL COMMITTEE: S. NEWCOMB, Mathematics; R. S. WOODWARD, Mechanics; E. C. PICKERING, Astronomy; T. C. MENDENHALL, Physics; R. H. THURSTON, Engineering; IRA REMSEN, Chemistry; CHARLES D. WALCOTT, Geology; W. M. DAVIS, Physiography; HENRY F. OSBORN, Paleontology; W. K. BROOKS, C. HART MERRIAM, Zoology; S. H. SCUDDER, Entomology; C. E. BESSEY, N. I. BRITTON, Botany; C. S. MINOT, Embryology, Histology; H. P. BOWDITCH, Physiology; J. S. BILLINGS, Hygiene; WILLIAM H. WELCH, Pathology; J. McKEEN CATTELL, Psychology; J. W. POWELL, Anthropology.

FRIDAY, FEBRUARY 7, 1902.

THE CARNEGIE INSTITUTION.

CONTENTS:

<i>The Carnegie Institution:</i> D. C. G.....	201
<i>The Wreck of Mt. Mazama:</i> J. S. DILLER....	203
<i>The Teaching of Anthropology in the United States:</i> DR. GEORGE GRANT MACCURDY.....	211
<i>On the Measurement of Time:</i> MILTON UPDEGRAFF	216
<i>Scientific Books:—</i>	
<i>Newcomb's The Stars:</i> PROFESSOR GEORGE C. COMSTOCK. <i>Earth Current Observations:</i> W. G. CADY. <i>Ridgway on Birds of North and Middle America:</i> J. A. A.....	220
<i>Scientific Journals and Articles.....</i>	226
<i>Societies and Academies:—</i>	
<i>The American Physical Society:</i> PROFESSOR ERNEST MERRITT. <i>Ohio State Academy of Science:</i> E. L. MOSELEY. <i>New York Academy of Sciences, Section of Biology:</i> DR. HENRY E. CRAMPTON. <i>Section of Astronomy, Physics and Chemistry:</i> DR. F. L. TUTTS. <i>The Philosophical Society of Washington:</i> DR. CHARLES K. WEAD. <i>The Elisha Mitchell Scientific Society:</i> PROFESSOR CHAS. BASKERVILLE.....	227
<i>Discussion and Correspondence:—</i>	
<i>The Daily Barometric Wave:</i> H. H. CLAYTON	232
<i>Notes on Inorganic Chemistry:—</i>	
<i>New Borids; Ethylene from Inorganic Sources; Organic Aragonite and Calcite; Utilization of Fluorin from Fertilizer Plants; A Gypsum Weather-scale:</i> J. L. H.	233
<i>Current Notes on Physiography:—</i>	
<i>Physiography of Wisconsin; Glacial Erosion in Skye; The Severn Bore:</i> PROFESSOR W. M. DAVIS.....	234
<i>Retirement of M. Hatton:</i> PROFESSOR R. H. THURSTON	235
<i>Scientific Notes and News.....</i>	236
<i>University and Educational News.....</i>	239

THE first meeting of the trustees of the Carnegie Institution was held in Washington on the 29th and 30th of January. Nearly all the members of the board were present and two sessions were devoted to a consideration of the important business entrusted to them by Mr. Carnegie. The Hon. John Hay, Secretary of State, presided on the first day and, at the second session, the Hon. Abram S. Hewitt, who had in the meantime been made permanent chairman of the board. The most interesting incident of the meeting was the appearance of the founder who in a very clear and modest way read the deed of trust by which he conveyed to the Carnegie Institution ten millions of dollars in five per cent. bonds of the United States Steel Corporation. After reading this deed, he proceeded to unfold in more familiar language the purposes that he had in view, which are not different from those already indicated, although he amplified certain points which had only been briefly mentioned before. Among other things he said in substance that he had been tempted to associate the name of George Washington with this gift

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

of his, but on reflection he had reached the conclusion that it would be unwise to do so. He also stated that the Carnegie Institution would not be such a national university as Washington thought possible in his day. Mr. Carnegie also gave emphasis to his repeated desire that the income of the fund should be largely devoted to extending human knowledge by original investigation and research. This would involve the selection of individual co-workers of exceptional powers. It would also lead to the publication of important memoirs. Beyond these fundamental restrictions the trustees are left free to proceed as they may think best from time to time. Accordingly, an executive committee of seven persons was authorized to formulate plans and to take such preliminary steps as might be important before the annual meeting of the trustees in November next. This committee consists of the president of the Carnegie Institution, Daniel C. Gilman, the four gentlemen with whom Mr. Carnegie has been advising during the last few weeks, namely: Hon. Abram S. Hewitt, Dr. John S. Billings, Hon. Carroll D. Wright and Hon. Charles D. Wolcott, and, in addition, Hon. Elihu Root and Dr. S. Weir Mitchell. The executive committee immediately after their appointment proceeded to discuss the next step to be taken and determined to begin by opening, temporarily, rooms in Washington at No. 1439 K Street, where conferences may be held. Next they propose to correspond with men in all parts of the country who are acknowledged leaders in science (using the word science in a very broad sense), and after their answers

are received to consider the suggestions they may make, preliminary to future action. They also propose to make a diligent inquiry respecting all the kindred agencies that are now promoting research under the auspices of the government or under the direction of universities and technical schools. The experience of foreign countries will also be carefully studied.

From this statement it will be obvious that the further development of this new institution will be slow and gradual. It is not expected that scholarships will be established at present, and all requests for assistance will be laid before the executive committee.

These points should be borne in mind. The great object of the foundation is the advancement of knowledge. The methods are left to the free action of the trustees, who will await the carefully matured suggestions of the executive committee. Nothing has been done in founding the new institution to further or to hinder the establishment of a national university which has been so many times proposed to Congress. Nothing is projected which will in any way interfere with the purpose of the George Washington Memorial Association to secure the funds requisite for the erection of a memorial building. Nor has there been any step taken which will prevent the Washington Memorial Institution, initiated early in the last summer, from developing plans for the introduction of students to the various scientific bureaus of Washington.

The Carnegie Institution is simply a new

force for the promotion of science, ready to cooperate with other institutions which are now or may be established in Washington or elsewhere. By its very foundation it is precluded from any thought of rivalry. If the founder's hopes are realized his wise and munificent bounty will benefit not only our own country but the interests of mankind.

D. C. G.

*THE WRECK OF MT. MAZAMA.**

INTRODUCTION.

THE geological record of this country from the earliest epochs to the present time is replete in volcanic phenomena, but the climax in such matters appears to have been reached in the earlier portion of the Neocene, when one of the largest known volcanic fields of the world was vigorously active in our Northwestern States. It stretches from the Rocky Mountains to the Pacific, embracing a large part of Wyoming, Montana, Idaho, Washington, Oregon and California, and presents a great variety of volcanic phenomena concerning which, notwithstanding a copious literature, there has been as yet but a small amount of detailed investigation. The work of the Geological Survey has taken me across this field in various directions and afforded an extended opportunity at intervals during nearly a score of summers upon the Pacific coast to study the western portion of the field. Instead of attempting a summary of what has been done in this large field, as perhaps might be expected upon this occasion, I beg to call your attention more particularly to a special feature in the volcanology of the Cascade Range, which,

so far as I am aware, is not well represented in any other portion of the field nor in fact anywhere else within the United States. To set forth more clearly the wreck of Mt. Mazama, which is the central theme, it is necessary to consider briefly the general relations of the whole range.

LIMITS OF THE CASCADE RANGE.

The western limit of the great volcanic field is marked by the corresponding border of the Cascade Range, which is made up at least largely, if not wholly, of volcanic material erupted from a belt of vents extending from northern California to central Washington. Lassen Peak marks the southern end of the Cascade Range and Rainier is near the northern end. Beyond these peaks the older rocks rise from beneath the Cascade Range and form prominent mountains, the range itself occupying a depression in these older terranes.

FOUNDATION OF CASCADE RANGE.

A clearer conception of the development of the Cascade Range may be gained by considering the geography of the region during the later portion of the Cretaceous. At that time the coast of northern California, Oregon and Washington subsided, causing the sea to advance upon the land. In California it reached the western base of the Sierra Nevada and covered a large part, if not the whole, of the Klamath Mountains. In Washington it beat upon the western base of the range near the coast north of Mt. Rainier, but in Oregon it extended far into the interior. Marine deposits of this period occur along the base of the Blue Mountains in eastern Oregon. The Cascade Range of Oregon did not then exist to shut out the open sea from that region. East of the Klamath Mountains, as shown by the position and distribution of the Cretaceous strata and their fossils of marine origin, the open sea connected directly with that of the Sacramento Val-

* Abstract of Presidential address delivered before the Geological Society of Washington, Dec. 18, 1901. The full address with geological map and illustrations will probably appear as a bulletin of the U. S. Geological Survey.