most the only evidence since the time of Willis that any master-hand has been working in this important field. The present publication places on record, in a convenient form, a considerable collection of such work and one likely to prove valuable to all mechanical engineers and draughtsmen.

The points here discussed and graphically treated are the general principles of the science, angular velocities, instantaneous axes, contact motions, including cams, rolling contacts, eccentric and related motions, linkwork, including 'slow advance and quick return' compositions, which are extensively treated, and, finally, the accelerative motions.

These discussions are concise, accurate, direct and clear. The theory of each case is developed as the construction progresses, in an admirable manner, and the graphical work is always equally clear, exact and legible. The author is an expert in this field and his skilful hand is recognized in the graphical constructions and their beautiful lines quite as well as in the text.

The book is printed on fine paper—which is, in fact, essential to the proper production of the illustrations—and the type and finish are alike appropriate to the artistic work of the writer of the treatise.

R. H. T.

GENERAL.

ON behalf of the Committee on Historical Documents of the American Historical Society, Supreme Court Justice Mitchell reported at the last meeting that arrangements had been made for the publication in full of the original journals of Lewis and Clark. These notebooks were deposited with the Society nearly a century ago by Governor Clark at the request of President Jefferson, under whose direction was sent out the expedition which gave the country the first knowledge of the newly acquired northwestern possessions.

THE Berlin and Copenhagen Academies of Sciences have commenced the task of collecting all the manuscript left by Galen and compiling a new and complete edition of his works.

THE preliminary work upon the preparation of a revised catalogue of the birds of Ohio has resulted in the addition of twenty species to the list since Dr. Wheaton's catalogue was published. Nearly 150 preliminary lists have been sent out for additions and corrections, but hardly a third of them have been returned to date. From those returned annotated much valuable information has been gained, particularly of an ecological nature, furnishing a basis for comparisons with conditions in Dr. Wheaton's time. Considerable field work must still be done in the extreme western, the eastern and the southern fifth of the State before the ideals upon which the work of revision was founded can be even approximately realized. As an aid to the furtherance of this work the compiler solicits information from all who are familiar with Ohio birds, who have not already examined a preliminary list. Communicate with Lynds Jones, Oberlin, Ohio.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 348th meeting was held on Saturday evening, January 25.

Under the heading of notes W. H. Dall called attention to the practice indulged in by some writers of rejecting names in biology which differ only by terminations indicating gender, as *Cyprina* from *Cyprinus*. He reprobated the practice as, if carried out strictly, likely to overthrow many names which have been in universal use for a century or so, and with absolutely no gain to science. As a particularly glaring instance of this he cited a recent experience with the work of Duméril, 'Zoologie Analytique,' issued in 1806. Duméril gave names to the animals of mollusca, distinct from those applied to the shells, by adding to the latter the termination *arius*. Thus we have the animal of the shell called *Nassa* by Lamarck, referred to a genus *Nassarius* by Duméril. On the ground that this name existed, though like all Duméril's names an absolute synonym, the later genus *Nassaria* of Adams and Reeve has been rejected by a recent writer. On looking up the facts in the

case and making a list of Duméril's names for future reference, it was found that among them was one called *Pleurotomarius,* founded on the animal of *Pleurotoma* Lamarck. This, if the above obnoxious custom were adopted, would oblige us to reject *Pleurotomaria* J. Sowerby, and its equivalent *Pleurotomarium* Blainville, for the well-known archaic genus of mollusks which has been accepted by everybody since 1821. The type of *Pleurotomarius* Duméril, furnished by Froriep in his translation of 1806, is *Pleurotoma babylonia* Lamarck, which is the type of Lamarck's genus *Pleurotoma,* 1799.

David Griffiths described, under the title 'A Seed Planter,' the peculiar method by which the seeds of *Plantago fastigata* are enabled to obtain a foothold on the baked plains of the southwest. The seeds of this plant are very abundant and are scattered far and wide, accumulating in every little depression. After the slightest shower these seeds are surrounded by a thick mucilaginous layer which, as it dries and shrinks, creates a minute pit under each seed, into which it sinks and is covered with dust and buried ready to germinate and send down a rootlet after the next shower.

F. A. Lucas presented 'A Phase of the Blue Fox Question,' referring to a paper read before the Society two years ago, in which he described the methods of trapping blue foxes devised by Mr. James Judge and employed on St. George Island of the Pribilof group. He recalled that males only were kept in the endeavor to make the foxes polygamous and his remark that the results of the experiment would be awaited with interest. The present communication gave the observations of Mr. Walter I. Lembkey, Treasury Agent, showing that after four years of trapping there was no evident increase either in the total number of foxes, or in the number of females. The entire paper will be given later in Science.

Rodney H. True discussed at some length 'The Physiology of Sea Water' and a synopsis of the paper will be found in the account of the meeting of the Society of Plant Morphology and Physiology given in Science.

F. A. Lucas.

NATIONAL GEOGRAPHIC SOCIETY.

The meeting of January 10 was devoted almost wholly to business affairs. The following named gentlemen were elected to serve as managers for the ensuing three years: Alexander Graham Bell, Henry Gannett, A. W. Greely, Angelo Heilprin, Russell Hinman, W J McGee, Gifford Pinchot and Otto H. Tittmann. The secretary's report showed an increase in membership, the total being over 2,600.

At the meeting of January 24 Dr. L. A. Bauer, in charge of the Division of Terrestrial Magnetism, U. S. Coast and Geodetic Survey, gave an account of the magnetic survey of the United States now being prosecuted. The importance of an accurate knowledge of the variation of the magnetic compass was dwelt on at some length.

The present survey involves a determination of the compass variation throughout the United States and the publication of the results in such form as shall be most useful to those interested. Stations about 25 miles apart have been established for the purpose of ascertaining the compass variation, while four magnetic observatories have been installed at the following named places: Cheltenham, Md.; Baldwin, Kans.; Sitka, Alaska, and Honolulu, Hawaii. At these observatories complete records of all the magnetic elements will be obtained.

The second paper of the evening was by Mr. James Page of the Hydrographic Office, Navy Department, on Ocean Currents. Mr. Page showed that an intimate relation existed between the general atmospheric circulation and the system of ocean currents, and that the latter were due directly or indirectly to the frictional action of the wind. The rate of drift of ocean currents varies greatly; in extreme cases it might be as much as 75 to 100 miles in 24 hours, but generally it is very much less, not more than 20 to 30 miles in 24 hours.

A. J. Henry,
Secretary.

SCIENCE CLUB, UNIVERSITY OF WISCONSIN.

At the December meeting of the Science Club of the University of Wisconsin, Decem-

ber 17, Professor T. C. Chamberlin, of the University of Chicago, gave an address entitled, 'Some Further Studies as to the Early States of the Earth.' The nebular hypothesis of the origin of the earth, as stated by Laplace, was discussed, and a brief summary made of certain tests to which the theory had been put by Professor Chamberlin and others, as described by Professor Chamberlin in various publications. It was concluded that the Laplacean hypothesis will not stand fundamental tests and that some modification of the hypothesis or some new hypothesis is necessary.

Professor Chamberlin's researches have furnished criteria for a new hypothesis of the origin of the earth. The parent body out of which the solar system was evolved must have been one which possessed limited matter; a very small proportion of matter near the exterior with very high energy of movement; in the central portion very low energy of movement, and with the conditions in the central portion permitting the development of a spherical body as the controlling center.

The earth in its early history may be conceived to have been a small body, growing gradually by the infall of material from without, without, in the early stages, an atmosphere, because of its incompetency to hold one. The atmosphere, instead of being the dominant phenomenon at the beginning of the earth, was practically absent from the exterior of the earth until it was $\frac{1}{10}$ or more grown. Gradually the accretion of the atmosphere permitted the gathering of water vapor, and this by condensation at length formed the oceans. These thenceforth protected the infalling matter of that portion of the earth, for matter falling into water does not undergo as ready decomposition as that which falls upon the surface. This process going on from age to age gave to certain areas a higher specific gravity than other portions. We therefore have an explanation of the superior gravity of the portion of the earth lying under these beds of water as compared with the land, and thus, perhaps, of the great depth of ocean basins.

It is obvious that from a very early stage volcanic action must have arisen from the excessive heat generated in the interior through self-compression of the mass, as may be shown by mathematical calculation. The volcanic action would affect certain substances before others, and the selection thus made from the time of its inauguration, when the earth was perhaps not more than $\frac{1}{80}$ or $\frac{1}{100}$ grown, is sufficient to explain the present distribution of volcanic matter.

Another phase of the history of the earth may be traced in this way: If the temperature of the interior is sufficiently accounted for by compression, the temperature developed by the infall of matter may have been made available for the sustenance of life at a very early period. Therefore we escape the objections raised by geologists against the prolonged era of evolution insisted upon by biologists.

C. K. LEITH.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

AT the meeting of the Academy of Science of St. Louis on the evening of January 20, Dr. George Richter delivered an address on the physical and chemical properties of gelatin, which he described as a spongy substance differing materially from other solids. The manner of manufacture of gelatin and its chemical and physical characters were described in detail, and considerable attention was given to the rate of absorption and evaporation of water by gelatin, and the phenomenon of its apparent solution in water. A new hygrometer was exhibited and described, the action of which was based upon the water absorption of gelatin.

At the meeting on February 3, Mr. Trelease presented, with the aid of lantern illustrations, some of the principal results of his recent studies of Yuccas and their allies.

WILLIAM TRELEASE,
Recording Secretary.

DISCUSSION AND CORRESPONDENCE.

WIRELESS TELEGRAPHY.

TO THE EDITOR OF SCIENCE: I wish to enter formal protest against the statement concerning Wireless Telegraphy, on page 112, etc., of the issue of SCIENCE for January 17.