clusion being that the reptilian tripartite origin of the mammalian condyle is more probable than the amphibian dicondylic origin. T. W. Galloway presents some 'Studies on the Cause of the Accelerating Effect of Heat upon Growth' giving the results of experiments upon the larvæ of various amphibians and showing that all the early developmental processes were accelerated. C. B. Davenport discusses 'The Variation of the Statoblasts of *Pectinatella magnifica*' and J. B. Johnston describes 'A Sealing Stone Jar for Zoological Laboratories' which seems very useful and is sealed with a heavy paraffin oil. The title page and index of the completed thirty-fourth volume are included in this number.

On January 1st appeared the first part of 'Geologisches Centralblatt, Revue Géologique, Geological Review,' edited by Dr. K. Keilhack, Bingerstrasse, 59, Wilmersdorf, Berlin, and published by Gebrüder Borntraeger, Leipzig, at an annual subscription of 30 Marks. The American agent is G. E. Stechert. The review is to appear on the 1st and 15th of each month, and is intended to give short, uncritical notifications of the latest publications in geology and allied sciences. The abstracts are written in German, French or English, according to the language in which the original papers have appeared. Since the contributors are to be compatriots of the respective authors, this renders their task easy; but the converse method would be of more advantage to scientific workers, and unless the German printers are more careful than they have been in the first number, even the English will be unintelligible to readers in this country. There can be no doubt as to the 'uncritical' nature of the notices; but this may be carried too far. It is to be hoped that authors, by contributing their own abstracts, will forestall some of the mangling to which they are otherwise liable.

It is interesting to note that in the numerous surveys of the nineteenth century, now being published, science usually occupies about half the space. This is in curious contrast to the slight attention paid by the newspapers to contemporary science and the carelessness with which scientific news is usually complied. Several of the daily papers have published very good historical surveys of the progress of science during the century; thus the New York *Evening Post* of January 12th, contains articles on astronomy by Professor Newcomb, on physics by Professor Lodge, on electricity by Professor Trowbridge, on medicine by Dr. Billings and other interesting articles. The New York *Sun* is also publishing a history of the nineteenth century in thirteen articles of which nine are on the science as follows: 'Evolution' (Dec. 23), by Alfred Russel Wallace; 'Chemistry' (Dec. 30), by Professor W. Ramsay; 'Archeology' (Jan. 6), by Professor Flinders-Petrie 'Astronomy' (Jan. 13), by Sir Norman Lockyer; 'Philosophy' (Jan. 20), by Dr. Edward Caird; 'Medicine' (Jan. 27), by Professor William Osler; 'Surgery' (Feb. 3), by Professor W. W. Keen; 'Electricity' (Feb. 10), by Professor Elihu Thomson; 'Physics' (Feb. 17), by President F. C. Mendenhall.

SOCIETIES AND ACADEMIES.

ZOOLOGICAL CLUB OF THE UNIVERSITY OF CHICAGO.

At the meeting of November 14th, Mr. G. A. Allen reviewed a recent paper by Duneker on variation in *Palæmonetes*, and Miss Minnie Enteman recounted her observations on the behavior of *Polistes*. Some of the more important points of the latter paper may be mentioned here:

Polistes, our common paper wasp, constructs for a nest a single flat plate of hexagonal cells without an external covering. This renders observation of its habits and instincts very easy. Among the facts gathered concerning the activities characteristic of the larval, pupal and imaginal life, the most interesting relate to those of the newly excluded worker:

1. Fear is very generally exhibited, the young worker retreating precipitately when a strange object is presented to it. This gradually diminishes with the repeated appearance of the awe-inspiring object. If the bit presented is edible the worker will, after five or six trials, come up, touch it with the antennæ and exhibit

2. The feeding instinct. This consists in crushing the food in the mandibles, and ex-

tracting its juices, which are then swallowed by the worker. When the mass has reached a pulp like consistency it is distributed to the feeding larvæ which occupy the cells of the nest. This habit has been thought to arise by imitation of the queen or an older worker, but that it is independent of such example is proved by the fact that it is acquired in all its perfection by wasps which have had no association with others of their kind.

3. The locality study. This is a mere desultory alternation of short flights and strolls, by means of which the wasp comes in contact with objects surrounding its nest. It appears to use these objects to some extent as landmarks, but experiments indicate that the olfactory sense is also an important factor in guiding it.

4. In a way the wasp remembers. This is indicated by its behavior when a change is made in its nest, and also by its accustoming itself to the appearance of strange objects.

5. Wasps learn nothing from one another. Instinct and individual experience account entirely for their complex activities, and their apparent cooperation is due to the accident of being born in the same nest.

At the session of November 28 Mr. C. M. Child gave a brief account of some zoological observations made during a recent trip to Florida, and showed a number of specimens.

Following this, Mr. E. R. Downing discussed 'Recent Experiments on Sea-Urchin Eggs,' referring chiefly to the work of Driesch.

The last session of the club for the autumn quarter was held December 12. This was devoted to a paper by Mr. C. C. Adams, entitled 'Geographical Distribution of Variations in *Io*.' The paper was illustrated by a number of lantern-slides, showing series of the shells from different localities.

The following abstract gives an outline of Mr. Adams's work on this form:

The gasteropod genus *Io* is found only in the headwaters of the Tennessee River and its tributaries. By the aid of a grant from the American Association for the Advancement of Science the Clinch and Powell Rivers were explored and the following facts concerning its geographical distribution and variations were discovered:

These shells are remarkably variable, all intermediates being found between a smooth shell (*Io fluvialis* Say) and a very spinose shell (*Io spinosa* Lea). The extremes of variation do not occur promiscuously in all localities, but are quite definite in their occurrence. In the headwaters of both streams the smooth shells form the dominant population, but farther down stream, in the case of the Clinch River within 60 miles, the entire shell population changes from a smooth to a very spinose shell. In the intermediate region the shells are mixed, smooth, spiny and intermediate.

The headwater shells in the Powell are more globular and relatively stable, have low or no spines, distance between spines small and slightly variable. Down stream the shells are less globular and relatively variable, spines high and fairly stable, distance between spines wide and variable.

In the Clinch the headwater shells are more globular (similar to those in the head of the Powell) and relatively variable, low or no spines, distance between spines small and slightly variable. Down stream the shells are less globular and relatively stable, spines are high and variable, distance between spines wide and stable.

Thus these parallel streams have parallel differences in their *Io* shells.

C. M. CHILD,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE U. S. NAVAL OBSERVATORY.

TO THE EDITOR OF SCIENCE: Every reader of SCIENCE must have been greatly interested in two recent editorials discussing the Naval Observatory at Washington and its work, but many of them will regret that where so much is said and so well said, the real meat of the controversy is left untouched, although in the last paragraph it seems to be 'scented.' Is it not true that the question in the minds of most thoughtful people is—what, in the name of reason is the use of having the Observatory for astronomical research under the Navy Department, any way?—why not just as well a geological survey? If this question be pertinent it cannot be impertinent and why do scientific