Values,' Mrs. Caroline A. Creevy tells of tar, camphor, manna, opium and some perfumes. In the supplement devoted to the 'Families of Flowering Plants,' Charles Louis Pollard discusses the orders Pandanales, Helobiæ and Triuridales.

THE *Mathematical Gazette*, the organ of the English Mathematical Association, will in future be issued six, instead of three times a year. The *Gazette* will contain articles suggestive of improvements in methods of teaching, or covering ground not satisfactorily treated in text-books, reviews of mathematical books, together with shorter notices of new text-books, elementary mathematical notes, problems, and other matter of direct interest to mathematical teachers.

Erythea, the Italian botanical journal, will be discontinued at the close of the present volume.

SOCIETIES AND ACADEMIES.

SECTION OF ANTHROPOLOGY AND PSYCHOLOGY.

THE annual meeting was held on the evening of Monday, March 26th. Professor J. McK. Cattell was elected Chairman for the ensuing year. The Secretary of last year was continued in office.

Dr. A. L. Jones read a paper on 'The Symbolic Character of Geometrical Forms as a Principle of Explanation.' Among the attempts to explain formal beauty, that of Lipps in his 'Raumästhetik' is the most striking. He maintains that the æsthetical value of beautiful geometrical forms is due to the fact that they symbolize the activity of mechanical forces working themselves out freely; that we sympathize with the forces thus represented and receive pleasure when their action is unhindered; that the forces and laws of their action are not consciously recognized, but are merely *felt* or known unconsciously. His explanation involves some questionable metaphysics. The action of mechanical forces is no doubt an important element in many beautiful objects, but it remains to be proved that it is sufficient to explain all formal beauty in objects.

Dr. R. S. Woodworth presented a paper on 'The Fatigue of Voluntary Movement.' The fatigue of movement may be studied in reference to the loss in force, in accuracy, or in speed. In each of these respects experiments show that a movement may be continually repeated for hundreds and even thousands of times with only a comparatively slight loss of efficiency. The ergographic curve given by Mosso for force of movement is to be absolutely abandoned as a true picture of the curve of fatigue. This fact has been of late recognized in some able articles by Treves, working in Mosso's own laboratory; but it is best brought out by the use of Cattell's spring ergograph. One of the great causes of fatigue in force (and also in speed) of movement is the failure of the muscles to relax completely between successive contractions. If care is taken to secure this relaxation, 1000–1500 maximal ergographic contractions can be made with a loss of only 10 per cent. of the initial force. From the slowness of fatigue of various modes of voluntary movement, the inference follows that the fatigue of nerve centers is not rapid, as Mosso and Lombard have supposed, but slow in progress. This view is confirmed by tests of prolonged, hard and monotonous work of a mental kind. The quick and overmastering fatigue of common experience is not so much actual inability and loss of function as it is disinclination, resulting from disagreeable sensations and emotions and from impulses to change.

The third paper, given by Dr. Thorndike, was on 'Weber's Law in Judgments of Comparison with a Mental Standard.' This paper presented the results of some experiments on the accuracy of discriminations of weight, length and area, by subjects who judged by the aid of mental standards only. Within the limits chosen (40–120 gr., ½–12 ins., 20–60 sq. cm., and 2–12 sq. ins.) the accuracy of discrimination was found to decrease very slowly, very much more slowly than Weber's law or even the law of the combination of errors would allow. The theory proposed to account for this was that our judgments of amount or of difference are of complex origin, and may be made on various grounds. In so far as the ground is an accurate mental standard the sensations corresponding to large amounts may be associated with the proper judgment nearly or quite as readily as small amounts. In so far as the

ground is a combination of feelings or judgment, the inaccuracy of a judgment may vary, because of the combination of errors, as the square root of the amount. In so far as the ground is the mere mental shock of difference, the inaccuracy of the judgments may vary in some more direct relation to the amount.

CHARLES H. JUDD, *Secretary.*

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 321st meeting was held on Saturday, March 24th. Barton W. Evermann exhibited a series of proofs of the colored plates prepared to illustrate a forthcoming report on the fishes of Puerto Rico. Sylvester D. Judd described some 'Feeding Experiments with Captive Birds,' illustrating the difference between the methods of the Broad-winged Hawk and Shrike in killing and eating their prey. The habit of impaling its prey on thorns, employed by the Shrike, was considered to be due to the weakness of its legs which prevented the bird from holding and tearing its prey after the manner of the Hawk.

W. H. Osgood presented some 'Notes on a Trip Down the Yukon River' describing the character of the river in different portions of its course and the geological aspect of the banks. The various life regions through which it flowed were pointed out and their faunal and floral peculiarities were stated.

H. J. Webber discussed 'The Influence of Pollen on the Fruit of the Current Year,' describing two crucial experiments where the color and chemical constitution of corn had been changed as a result of the immediate influence of pollen or xenia. In one case sweet corn, which had been bred true to type for three generations, when crossed with yellow dent corn produced ears having smooth yellow dent kernels with starchy endosperm like the male parent. In the other case Hickory King, a white dent corn, with a large portion of corneous endosperm, grown from seed inbred the previous year and known to be pure, when crossed with Cuzco a plumbeous colored soft flour corn produced kernels of plumbeous color or with plumbeous colored spots and little corneous endosperm in these characters resembling the male parent.

F. A. Lucas spoke of 'The Tusks of the Mammoth' saying while the animal was usually represented with the tips of the tusks flaring outward there was good reason to believe that the tusks pointed inward at the tips as in the modern elephants. He illustrated his remarks with photographs of different specimens including one 12 feet 10 inches long, from Alaska believed to be the longest tusk on record.

F. A. LUCAS.

GEOLOGICAL SOCIETY OF WASHINGTON.

THE 100th regular meeting was held at the Cosmos Club, March 28, 1900.

The program for the evening comprised a 'Symposium on Field Methods,' illustrated by notebooks, maps and instruments used in each class of work. The following contributions were presented:

M. R. Campbell and A. Keith—Appalachian Methods.

T. W. Vaughan—Great Plains Methods.

G. O. Smith—Lake Superior Methods.

J. D. Irving—Adirondack Methods.

J. E. Spurr—Reconnaissance Methods in the Great Basin.

A. H. Brooks—Reconnaissance Methods in Alaska.

W. Cross—Rocky Mountain Methods.

H. W. Turner—Sierra Nevada Methods.

F. L. RANSOME,
DAVID WHITE,
Secretaries.

DISCUSSION AND CORRESPONDENCE.

'NEW-DARWINISM.'

TO THE EDITOR OF SCIENCE: In a review of my book 'Darwinism and Lamarckism' (G. P. Putnam's Sons) in SCIENCE for December 29, 1899, Mr. C. W. Hargitt objects, perhaps rightly, to my using the term 'New-Darwinism,' in a sense different from that in which it has been used by many biologists. I quite agree with him that I ought to have given my reasons for thus using the term and I shall feel obliged if you will allow me to give those reasons now.

About ten years ago Dr. A. R. Wallace published a book on the theory of Natural Selection, and about the same time Professor Weismann published an essay on heredity. Both advo-