the various lake forms of the long-spined Daphniæ to one species, viz., *Daphnia longispina*. The winter forms of *Daphnia hyalina, Hyalodaphnia (Daphnia) cucullata* and *Cephaloxus* can not be distinguished from each other and they remain indistinguishable in the spring till the water reaches a temperature of 14° to 16° C. As the temperature rises above this, these indistinguishable forms change in the course of two or three weeks into the slenderer and lighter summer forms which show all the characteristics of the different races to which they belong. In the autumn all return again to the common race form which is found from December until April. The autumn change extends over a longer period than the spring change.

Bosmina coregoni shows a decided seasonal variation while *B. longirostris* shows only an extremely slight one.

The author reaches the conclusion that local and seasonal variations arose during the glacial epoch and are to be considered as the reply of the organism to the greater differentiation in environment; in part at least to the greater claims made by the rising temperature on the floating power of the organism. The return to the arctic form in winter shows that seasonal variation is a condensed summary of the development which the organisms have undergone from the glacial period to the present time.

The long period of time covered by the collections used for this study, and the large amount of material that has been examined, make this a most valuable contribution to this phase of limnological investigations.

C. Juday

SCIENTIFIC JOURNALS AND ARTICLES

The Journal of Biological Chemistry, Vol. VI., No. 4, August, 1909, issued August 12, 1909, contains the following: "The Spontaneous Oxidation of Cystin and the Action of Iron and Cyanides upon it: The Action of Metals and Strong Salt Solutions on the Spontaneous Oxidation of Cystein," by A. P. Mathews and Sydney Walker. In these two papers various influences which affect the spontaneous oxidation of cystin and cystein are described and the action explained in part. Analogies with cellular oxidations are pointed out. "On the Nature of the Chemical Mechanism which Maintains the Neutrality of Tissues and Tissue-fluids," by T. Brailsford Robertson. The maintenance of neutrality in the blood plasma and tissues is largely dependent upon proteins. The reactions by which it is brought about are explained. "Observations on Uricolysis, with Particular Reference to the Pathogenesis of 'Uric Acid Infarcts' in the Kidney of the New-born," by H. Gideon Wells and Harry J. Corper. Uricolytic ferments could not be demonstrated in human tissues: uric acid deposits in kidneys are not therefore due to failure of such enzymes. "Protein Metabolism in Cystinuria, II.," by Horatio B. Williams and Charles G. L. Wolff. Various metabolic tests carried out on a patient with cystinuria. "The Direct Colorimetric Determination of Phosphorus with Uranium Acetate and Potassium Ferrocyanide," by Robert B. Gibson and Clarence Estes. A convenient quantitative method for total phosphorus in organic compounds. "Notes on the Effect of Shaking upon the Activity of Ptyalin," by Marie M. Harlow and Percy G. Stiles. Adsorption is a factor in explaining the curious observation that some enzymes may be destroyed by mechanical shaking. "The Estimation of Total Sulphur in Urine," by Stanley R. Benedict. Oxidation by copper nitrate very greatly facilitates the estimation of total sulphur.

SPECIAL ARTICLES

SALIENT EVENTS IN THE GEOLOGIC HISTORY OF CALIFORNIA

There are few regions in the world where the records of geologic history are more complete than in California, for every major division is represented by marine sediments, and many of them also by continental deposits. This is made possible by the geographic position between two ancient and persistent bodies of water, the Pacific Ocean, and the Great Basin Sea, which alternately encroached on what is now California, each one supplying that part of the record which the other