enzymes. Only in this way, one may expect to find an explanation for the high specificity of enzymes and for the mechanism of their action.[13]

E. WALDSCHMIDT-LEITZ

PRAGUE

REDWOODS AND FROST

DURING the cold period in the second week of December, 1932, the coast redwood, *Sequoia sempervirens,* was noticeably frosted in the northern part of its range in Del Norte and northern Humboldt Counties, California. The damage was general but not severe and was confined to the new growth on trees in exposed situations and the outer foliage of young trees. The leaves in many instances were browned as if by a fire.

From December 8 to December 15, inclusive, a period of eight days, minimum free air temperatures of from 30° to 22° Fahrenheit were recorded at the Eureka station of the U. S. Weather Bureau. During this time departures from the average daily temperatures ranged from $-15°$ to $-18°$. The minimum low of 22° occurred on December 12. The only other period of cold which is comparable in intensity and duration was experienced in the winter of 1887–1888 a few years after the establishment of the Eureka Weather Bureau Station. At that time the lowest recorded minimum of 20° was registered, and minima of less than 32° were experienced for seven days. The recent cold spell was characterized by unusually low relative humidity for the place and season; the percentage at noon from the 10th to the 13th varied from 27 to 20. The low humidity probably intensified the effects of the freezing temperatures.

The reaction of the redwoods to the present winter weather throws some light on the question of the seemingly anomalous northern boundary of the redwood belt. The redwoods are manifestly limited at the south by insufficient precipitation and low humidity, but the reason for the location of the northern boundary has not been clear, since there is little difference between the climate of the northwestern coast of California and the southwestern coast of Oregon. The northernmost grove of redwoods, now logged off, consisted of about forty acres of mature trees and was located a few miles north of the California state boundary and about twenty miles inland on an elevated table-land at an altitude of about 2,000 feet. There are scattered mature trees on the high benchlands along Smith River from 20 to 25 miles to the south of this grove at altitudes of from 1,500 to 2,500 feet. The nearest extensive grove is found on the coastal shelf at the mouth of Smith River about 15 miles southwest of the northernmost grove. The Smith River groves are open to the influence of the sea wind at all times. It should be noted that the elevated bench-lands and the coastal shelf are both protected from the formation of the pools of cold, dry air which accumulate during the high pressure conditions in the winter, and are thus naturally frost-protected habitats.

A major part of the reproduction in the established redwood groves is by stump sprouting, but any advance of the species into new territory must be by means of seedlings. It may be that these seedlings are killed during the occasional cold winters in the northern part of the range and that the northern boundary of the redwood belt is defined by the maximum tolerance of the species for frost.

The writer hopes to report later on the effect of the frost on the stump sprouts in the northernmost grove and the reaction of the seedling trees to the present inclement winter weather.

HARRY D. MACGINITIE

STUDIES ON THE BOTTOM FAUNA OF FRESH-WATER LAKES

A VERY interesting and valuable paper discussing the littoral population of western Lake Erie within the six-foot contour appears in the April number of *Ecology*.[1] On page 82 the authors state that no population studies have been made in which the shore is divided into physical areas and depths and the quantitaitve results published in detail. Had the authors delved more deeply into the bibliography of the subject they would have found at least two papers[2] dealing with population problems of the littoral area described in great detail. These cover studies on Oneida Lake, New York, and on Winnebago Lake, Wisconsin. Neither of these lakes have the shelving rock habitat of the shore of Lake Erie, but the other shore habitats, such as boulder, gravel, sand, clay and mud, are present. The populations of these areas per square meter in the two lakes studied are shown below

	Oneida Lake	Winnebago Lake
Boulder bottom	1,945	321
Gravel bottom	1,944	1,579
Sand bottom	3,421	1,326
Clay and mud bottom	5,866	1,450
Vegetation	263	4,400

13 E. Waldschmidt-Leitz, *Phys. Reviews,* 11: 358, 1931.

1 "Bottom Shore Fauna of Western Lake Erie," F. H. Krecker and L. Y. Lancaster, *Ecology,* 14: 79–93, 1933.

2 F. C. Baker, "Productivity of Invertebrate Fish Food on the Bottom of Oneida Lake, with Special Reference to Mollusks," N. Y. State Coll. Forestry, Tech. Pub. 9: 11–233, 1918; "The Fauna of the Lake Winnebago Region," Trans. Wis. Acad. Arts and Sci., 21: 109–146, 1924.

and compare favorably with the studies made in Lake Erie, and in fact show a much larger population per unit area in some cases.

No actual figures of the Lake Erie population are given, but the graph on page 84 shows that few of the areas exceed 1,000 individuals. In Lake Winnebago the greatest number of individuals was found between 2–6 meters in depth and in Oneida Lake between one and two meters. In Lake Erie the maximum population was found in the shallow areas bordering the shores, as has been noted in all lakes studied quantitatively. The vegetation population in Lake Winnebago varies enormously. While the average shows only 4,400 individuals per square meter, there are favorable localities where the population will run as high as 15,000 or 20,000 per square meter, especially in some of the sedge habitats.

It is to be regretted that the unit areas of the Lake Erie paper were not made in square meters instead of square yards, because most studies of this nature have been made with the metric measurements, and while the two units are approximately the same there is still enough difference to make it difficult to compare results accurately.

Lake Winnebago is in many respects similar to Lake Erie in its physical as well as its population make-up. Many species and races of naiades are identical and are found only in these two localities. With the exception of the vegetation areas, the population per square meter is greater in Lake Winnebago than it is in Lake Erie. The population per square yard of the shelving rock shore of Lake Erie is parallelled in the Wabash River at New Harmony, Indiana, Thomas Say's historic collecting locality, where the under side of a flat rock averaging a square foot in area will often be so thickly covered with mollusks (Pleuroceridae and Somatogyrus) that every fraction of an inch is occupied. A count of one such rock gave more than 1,500 individuals. A square meter in several places at this locality will contain in excess of 10,000 mollusks.

Frank Collins Baker
University of Illinois

NOMENCLATURE OF THE ELECTRON

Dr. Anderson's recent discovery of the positive analog of the long known negative electron has raised an important question of nomenclature. The word electron was originally devoid of significance regarding polarity. But the custom of using it as a specific term for the negative unit has acquired considerable prestige. This custom might continue unchanged if Professor Herbert Dingle's suggestion of "Oreston" as the name of the new positive unit were adopted. The suggestion has considerable merit for that reason as well as because of its mythological significance.

Nevertheless, the writer is inclined to protest against its adoption and to plead for Dr. Anderson's terms "positron" and "negatron." The basis for the plea is simple but nonetheless weighty, to one who is concerned with elementary instruction; namely, that the latter terms are obviously descriptive of the principal properties of the two units. In consequence, the student's learning of terms and definitions would be simplified and brought closer to reality.

The term "electron" may then be used in its original generic meaning, without reference to the specific charge that the particle might have.

E. A. Wildman
Earlham College

SPECIAL CORRESPONDENCE

THE SECOND PSYCHOLOGICAL EXPEDITION TO CENTRAL ASIA

The second psychological expedition to central Asia which took place in the summer of 1932 had for its aim extension of researches which were undertaken by the first expedition in 1931. The fundamental aim was the study of those peculiarities of the psyche which are the result of various historical conditions and to trace out the fundamental laws in development of psychological processes. In this respect central Asia is of exceptional interest on account of the residuals of primitive economic conditions which are now undergoing tremendous industrial, political and cultural transformation. This change gives opportunity not only for the studying of the peculiarities of psychological processes under various conditions, but also, what is more important, the very dynamics of the transition from the more elementary psychological laws to the more complex processes. Just as in the first expedition the study was undertaken in the region of Uzbekistan, in which were specially chosen the more primitive Kishlaks districts as far as their economic, cultural and social conditions were concerned, such as the Kishlaks of Shahimardan and Jordan and the grazing kirgiz lands in the Altai Mountains, as contrasted with the Kishlaks of Palman with a thorough collectivization, well-developed cultural work and high industrial organization.

In contradistinction to the first expedition not only the adults were studied, but also the Kishlak youth on whom the cultural changes must have made a special impression.

The expedition was organized by the State Psycho-