Völlig unbekannt ist vorläufig die Mechanik dieser Permeabilitätsänderungen, wenn auch wahrscheinlich ist, daß sie über die Porengröße des Plasmas gehen dürften; daß die Veränderungen vom Sproß her gesteuert werden, macht die Erklärung besonders schwierig. Bemerkenswert ist aber, daß ganz analoge Erfahrungen ja auch für die Elektrolytaufnahme durch die Wurzeln vorliegen (Hoagland, O. Schmidt). Bruno Huber (Tharandt i. Sa.).

Vernadsky, W. I., B. K. Brunowsky and **C. G. Kunasheva, Concentration of Mesothorium-I by Duckweed (Lemna).** Nature, Vol. **140**, No. 3538, 317—318, (1937).

Lemna minor L. and *Lemna polyrrhiza* L., from a lake near Leningrad, were kept in the laboratory in native pond water for 2 years. Analysis of the pond water showed all the isotopes of Th (meso-Th-I, radio-Th and Th-X) present, whereas in the plant tissues only meso-Th-I was present in a concentration of $9{,}05 \times 10^{-15}$ %. The concentration of meso-Th-I in the lake water was $8{,}25 \times 10^{-17}$ %, so the authors conclude that *Lemna* accumulated selectively meso-Th-I to a concentration 100 times that of the external solution.

M. M. Brooks (Berkeley).

Mazia, D., Binding and Penetration of bivalent cations in Elodea cells. Biol. Bull. **73**, 358 (1937).

Since the vacuoles of *Elodea* contain soluble oxalates, these were used to study the binding of Ca-ion, Sr-ion and Ba-ion. Strong electric currents or ultraviolet light, or plasmolysis and deplasmolysis can set free Ca-ion which will go into the vacuole where its presence can be detected by the formation of Ca-oxalate crystals. To prove that this Ca is actually bound, cells of *Elodea* can be washed in distilled water for two weeks without removal of Ca, altho it is easily removed with the addition of citrate, and just as easily returned to the protoplasm by immersion of the cell in ,01 M $CaCl_2$.

Binding is prevented by Na-ion and K-ion. When the ratio of Na/Ca is 100, binding is largely prevented. It is possible to substitute Ba-ion and Sr-ion for Ca-ion in protoplasm, and subsequent binding occurs. These "substituted" cells seem to function normally. Sr-ion penetrates the protoplasm easily even against a concentration gradient, unless Na or K ions are present to impede its penetration. M. M. Brooks (Berkeley).

Albaum, H. G., S. Kaiser and **H. A. Nestler, The relation of hydrogen ion concentration to the penetration of 3-indole acetic acid into Nitella cells.** Amer. J. Bot. **24**, 513—518 (1937).

Nitella cells were immersed in phosphate-citric acid and buffered solution of pH 3,98—6,8 containing 0,0036 M 3-indole acetic acid: A. At times up to 2 hours samples of sap were analysed by the colorimetric method with $FeCl_3$ and the pH values were determined. The "trap effect" for weak acids is based upon the penetration of the undissociated acid reaching the same value in the sap as in the external medium, and upon impermeability of the cell to ions of the acid for the duration of the experiment. If the results obey this rule, the total concentrations of A depend upon differences between the constant pH of the sap and the adjusted pHs of the external medium. The time curves found by the authors have been distorted so as to indicate the same concentration of A in the sap at all different pHs of the medium. These time curves are steeper at the lower pHs, and measurements have been so made to indicate that the rate (rather than equilibrium) is proportional to the undissociated fraction of A. Actually, the *rates* as based on the actual equilibrium are *constant*, which makes the graphical slope of the first part of the curve to vary with the *different equili-*