possible that a more mesophytic grassland may be the climax, with the formation of a turf resisting erosion.

Investigations by BHIDE¹² during one of the worst droughts on record, in 1918-19, have taken into account some of the plants showing the most successful resistance to such arid conditions. Such data not only add to our knowledge of the existing vegetation, but furnish material for improving existing economic conditions in a region where grazing is of first importance.

The anatomy of many plants of the arid region is also being investigated by SABNIS.¹³ The results of such efforts are certain to be valuable for India and interesting to botanists elsewhere.—G. D. FULLER.

Tension zone between forest and prairie.—Following an earlier study by WEAVER and THIEL, an interesting tension zone investigation has been carried on by POOL, WEAVER, and JEAN¹⁴ in eastern Nebraska. Stations were selected at Peru, near the Missouri River, and at Lincoln, sixty miles west of Peru. By means of quantitative experimental study, striking contrasts between these two stations, due to both climatic and edaphic factors, were brought to light. The prairies and woodlands near Lincoln are much more xerophytic than those near Peru, in spite of the short distances involved between the two places. Available soil moisture during the summer of 1917 was exhausted on eighteen different days on a Lincoln prairie and on only four different days on a comparable Peru prairie. Many mesophytic woodland species pass out in traversing the area between these two places. The high saturation deficit and the low soil moisture content of the prairie sites in eastern Nebraska constitute barriers over which forest trees can scarcely pass. The authors feel that herein is the most ready explanation for the confinement of Nebraska woodlands to the moist slopes of narrow valleys and for the general treelessness of prairies. In the order of increasing mesophytism, the forests about Peru are as follows: bur oak-yellow oak, black oak-hickory, red oak, linden-ironwood, while the common forest type about Lincoln is that of the bur oak-hickory.—H. C. COWLES.

Composition of plants as affected by nutritive elements.—Growing the oat plant in analyzed quartz sand, DICKSON¹⁵ has made a study of the effects of a deficiency of certain nutrient elements on the calcium and phosphorus

¹² BHIDE, R. K., Drought resisting plants in the Deccan. *Jour. Indian Bot.* 2: 27-43. 1921.

¹³ SABNIS, T. S., The physiological anatomy of the plants of the Indian desert. *Jour. Indian Bot.* 2:1-19, 61-79, 93-115. 1921.

¹⁴ POOL, R. J., WEAVER, J. E., and JEAN, F. C., Further studies in the ecotone between prairie and woodland. *Univ. Nebraska Studies* 18:1-47. *figs.* 17. 1918.

¹⁵ DICKSON, J. G., The relation of certain nutritive elements to the composition of the oat plant. *Amer. Jour. Bot.* 8:256-274. *figs.* 2. 1921.

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