

of the phosphate solution used for washing the yeast³ (destruction of phosphatase at higher temperature); Lipmann's observation⁴, fully confirmed in this laboratory by Mr. Eitje and Mr. Hiegentlich, that aneurin is without any effect, when it is added to the yeast suspension some minutes after the addition of cocarboxylase (cocarboxylase destroyed already before the inhibition of phosphatase by aneurin); no stimulating effect of aneurin observable with Weil-Malherbe's purified carboxylase⁵ (absence of phosphatase).

We wish to thank Prof. B. C. P. Jansen for his kind interest in our work.

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¹ Ochoa, S., *NATURE*, **141**, 831 (1938); see also Ochoa, S., and Peters, R. A., *Biochem. J.*, **32**, 1501 (1938).

² Westenbrink, H. G. K., and Goudsmit, J., *Enzymologia*, **5**, 307 (1938).

³ Westenbrink, H. G. K., *Enzymologia*, in the press.

⁴ Lipmann, F., *Enzymologia*, **7**, 142 (1939).

⁵ Weil-Malherbe, H., *Biochem. J.*, **33**, 1997 (1939).

Chalk Landscape

GEOLOGISTS used to ask themselves a riddle: How did the rounded outlines of the chalk denes and downs come to show the forms characteristic of sculpture by streams, since water runs straight through the chalk and does not form streams upon it? The acceptable answer to the riddle used to be that long ago the chalk below the surface was made impermeable summer and winter by frost, and that in the spring the snows of winter rushed off the frozen surface in torrents. Weather conditions last winter in our part of Wiltshire illustrated this

strikingly in a way which the oldest inhabitant does not remember to have seen before. My house is in a dene in the chalk sloping gently to the Kennet for nearly two miles, with downs on each side. It will be remembered that there was first sharp frost with heavy snow-falls, then a few days thaw, and then again sharp and prolonged frost. The effect of this, no doubt, was to seal the chalk with a layer of absorbed and frozen water. During the second and prolonged frost there was the now celebrated incessant deposition of dew in the form of ice, and of snow, making a big accumulation of water on the top of the frozen layer. Then came the final thaw. With it, for the first time within living memory, a stream appeared and flowed briskly down the dene, doing a little water sculpture on its way and leaving some tiny deposits which will make good Combe rock in the future.

How rare such an occurrence is under modern conditions is shown by the fact that my house is built in the very bottom of the dene. So it gave difficulties to the stream, out of which it could find no better way than to run straight through the house from the front door to the back.

During the second great frost the young trees were so weighted with solid ice that the tops of many were bent to the ground and old trees had great boughs broken—a strange sight but one not unseen before, for a student points out to me these passages in a letter of Erasmus:

"Deinde grando, tum et pluvia, quae simul atque terram arboremque contigit protinus in glaciem concreta est. Vidisses arbores glacie vestitas adeoque pressas ut aliae summo cacumine inum solum contingerent, aliae ramis lacerae. Jurabant nobis rusticis homines natu grandes se simile nihil unquam in vita vidisse antea."

Lockeridge
March 1.

KENNET OF THE DENE.

Points from Foregoing Letters

A RECENTLY published account by H. F. Bain describes the isolation from unsterilized roots of *Vaccinium macrocarpon* growing in America of a mycorrhizal fungus specifically distinct from the *Phoma radialis* isolated by Ternetz from sterilized roots of native Swiss species of *Vaccinium* in 1907. In view of this discrepancy, M. C. Rayner and I. Levisohn have investigated British material of *Vaccinium Oxycoccus*, and now record that the fungus isolated by them from sterilized roots of this species agrees in every particular with that isolated by Ternetz.

O. N. Purvis has successfully vernalized fragments of winter rye embryos consisting of the stem apex and one leaf initial only, by culturing on a suitable medium for six weeks at 1°C. The response was less than that of whole embryos to similar treatment.

The toxicity of poisons used in insecticides depends primarily on the physico-chemical relations of the toxic principle and the carrier. H. Hurst finds that feebly dissociating compounds of high dielectric constant penetrate the cuticle of insects more readily in the presence of relatively apolar substances of low dielectric constant, the main region of induced penetration being at the cuticle-haemolymph interface.

Data obtained by G. Eloff in connexion with daily counts of offspring from *Drosophila* cultures in which parents were left for forty-eight hours, pointed in the case of the criss-cross generation to a high emerging frequency on the fifth day of counting, especially accentuated in the case of the males. In the case of pure yellow-white cultures of *D. melanogaster* the females also showed a strong fifth day peak. The phenomenon, which is probably associated with lowered viability, was absent in the case of wild cultures of *D. melanogaster* and *D. simulans*.

A new species of *Amœba* of the genus *Chaos* has been isolated and cultivated and is briefly described by M. Taylor and C. Hayes. *Amœba lescheri* is slightly smaller than *Amœba proteus* Y., which it resembles in many ways. The nucleus, which is discoid and situated in the peripheral endoplasm, divides amitotically. Fission of the cytoplasm can take place while the amœba floats and occurs once a day.

H. G. K. Westenbrink and D. A. van Dorp have investigated the cause of the apparent activation of the carboxylase system by free aneurin. In their opinion it is caused by the inhibitory effect of aneurin on the hydrolysis of cocarboxylase by phosphatase, present in the alkaline washed yeast.