A. B. MACALLUM.

the latter, not with contraction, for smooth muscle fibre shows that property, nor with tetanus, for in cardiac muscle the potassium is disposed as in ordinary striated fibre, but with rapidity of contraction, which distinguishes striated fibre from smooth.

There is in the secreting cells of the pancreas of the guinea-pig 12. and rabbit a remarkable concentration of potassium compounds in that portion of the granular zone immediately adjacent to the lumen, while the remainder of the cytoplasm is free from them.

13. There are organisms which manifest a distinct capacity to absorb potassium and amongst them is one, parasitic on Spirogyra, whose mycelial chreads exhibit kaliophilism in a special degree.

PLATES I AND 11.

Note .- The orange-yellow in the Figures represents the distributing of the triple salt, the black the cobaltons sulphide reaction of the same.

- Fig. 1. Protococcoid forms growing on sandstone. In a the potassium occurs in a large granule in each cell, but in b each cell contains several potassium-holding granules, and in one is an irregular mass in which there is shown a diffused trace of potassium. ×1000.
- Fig. 2. Tolypothrix sp., showing potassium present in the granules and in the peripheral zone, the "central body" being free from it. c, one of the cells seen on its flat or end snrface. ×1360.
- Fig. 3. Tolypothrin sp. (different from preceding). The lowest cell seen in optical section, the others represented as in superficial view. \times 1360.

Fig. 4. Bacillus subtilis. × 1360.

- Fig. 5. Forms in a culture of Saccharomyces Ludwigii in the sap of Ostry virginica. × 1360.
- Fig. 6. Mycelial threads from the stem of Agavicus sp. × 680.

Figs. 7 and 8. Two different species of Spirogyra, prepared from normal and actively growing cultures. × 500.

- Fig. 9. Spirogyra sp. Preparation from culture kept for several days in the laboratory and more or less in an abnormal condition (i.e., of partial plasmolysis). The potassium now occurs only at points on the chromatophor bands. × 500.
- Fig. 10. A fragment of a chromatophor in the same preparation from which Fig. 9 was drawn. In this potassium is found localized in the neighbourhood of some of the pyrenoids. × 1000.
- Fig. 11. Spirogyra sp. (as in Fig. 8) in a partially plasmolysed condition. The chr. natophor bands are displaced and the potassium is found only at points on and in the r course, sometimes in the immediate neighbourhood of pyrenoid bodies.
- Fig. 12. Spirogyra sp., Zygospore. The view represented shows the distribution of potassium to be almost wholly under the membrane, yet in the cytoplasm. × 500.
- Fig. 13. Cell outline of Spirogyra sp., showing the occurrence of a parasite (? Chytridiaccous) rich in potassium. \times 500.
- Fig. 14. Intracellular filament of same parasite showing its kaliophilous character. × 500.

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