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Reduction Intensity in Anaerobic Ameba dubia.

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Lack of suitable indicators has hitherto prevented an examination of intracellular oxidation-reduction intensities by microinjection under anoxybiosis. Earlier attempts by Cohen, Chambers and Reznikoff[1] using phenosafranine were inconclusive because the dye underwent irreversible change during the time required for manipulation and observation. Stiehler, Chen, and Clark[2] and Stiehler[3] have recently made available some new indicators for the more negative regions of reduction potential which we have utilized. Some of these compounds undergo irreversible change but by quick operation (injections made within a few minutes after reduction) we have succeeded in obtaining definite indications.

Observations were made in an improved hermetic chamber through which flowed moistened purified nitrogen or hydrogen. Injection of oxidizing agent or exposure to air were used to check the reversibility of the indicator in the cell interior. Results on immersion of the cells in oxidant or reductant confirmed those obtained by microinjection.

The experiments were restricted to one type of unicellular organism, *e. g., Ameba dubia.* The results are given in the accompanying table. These preliminary observations are now being augmented by examination of other available indicators.

TABLE I

Indicator	E'_o at pH 7 (Volt)	Oxidant in cell	Reductant in cell
Dimethylphenosafranine	-0.260	Partly reduced	Reoxidized
Safranine T	-0.289	" "	"
Sulfonated rosindone, No. 6 (cf. Stiehler)	-0.380	Not "	"

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[1] Cohen, B., Chambers, R., and Reznikoff, P., *J. Gen. Physiol.*, 1928, **11**, 585.

[2] Stiehler, R., Chen, T.-T., and Clark, W. M., *J. A. C. S.*, 1933, **55**, 891.

[3] Stiehler, R., Dissertation, 1933, Johns Hopkins University.