

**Intracellular Sodium Concentration
and Activity Coefficient in
Single Barnacle Muscle Fibers**

Dear Sir:

The comments on my paper (Sodium and potassium fluxes in isolated barnacle muscle fibers. *J. Gen. Physiol.* 1968, **51**: 445) by Dr. S. G. A. McLaughlin have been referred to me for reply.

At issue is the extent to which the extracellular sodium present in the surface invaginations of single barnacle muscle fibers can make the intracellular activity

coefficient appear lower than it really is. My interpretation of the data in their Table II (McLaughlin and Hinke, 1966) was based on information available to me at the time my paper was submitted for publication. Unfortunately I was unaware of some prior work by McLaughlin and Hinke (1968) since their paper was published only one month before my own. In this more recent paper the problems of the extracellular space and the low activity coefficient in sucrose-soaked fibers had already been considered. An explicit correction had also been made for the extracellular space, which was not done in the earlier paper, and the intracellular sodium estimated to be about 40 mM/Kg H₂O. This value is still about two times larger than the determinations of intracellular sodium reported by three other laboratories (Hagiwara et al., 1964; Beaugé and Sjodin, 1967; and Brinley, 1968) on either the same or closely related species of barnacles.

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F. J. Brinley, Jr.
Department of Physiology
Johns Hopkins University
School of Medicine
Baltimore, Maryland 21205

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