

when all the enzyme is in the native active form, and  $I_2$  is the rate when part of the total enzyme molecules exist in a reversibly denatured, catalytically inactive form. The heat of reaction,  $\Delta H$ , is then obtained from the relation,

$$\ln\left(\frac{K_{T_1}}{K_{T_2}}\right) = \frac{\Delta H}{R} \left(\frac{1}{T_2} - \frac{1}{T_1}\right) \quad (1)$$

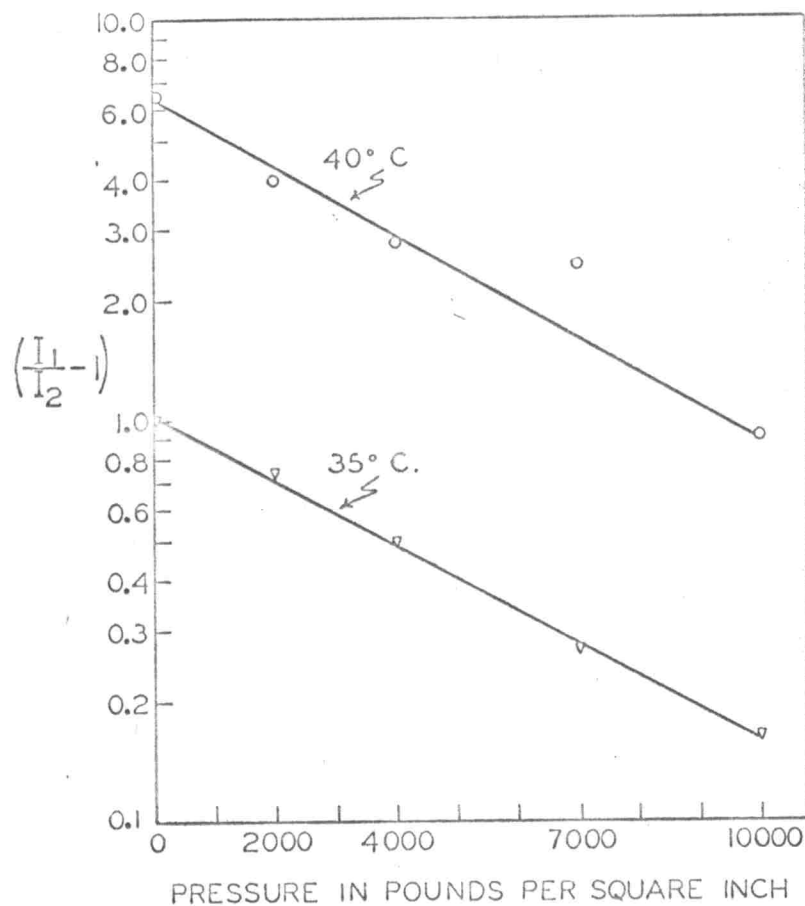


FIG. 5. Analysis of the volume change of reaction,  $\Delta V$ , in the pressure reversal of the temperature inactivation of invertase at 35° and 40°C., as discussed in the text.

In the present instance, the heat of reaction amounts to 71,300 cal., and the entropy to 232 E.U.

The volume change of reaction is determined by plotting  $\ln\left(\frac{I_1}{I_2} - 1\right)$ , i.e.,  $K$ , against pressure, and making use of the expression:

$$\left(\frac{\partial \ln K}{\partial p}\right)_T = \frac{\Delta V}{RT} \quad (2)$$