$$\frac{S\cdot(S-y)}{y} = \frac{1}{K_2}\cdot\frac{1}{t} = \frac{K_3}{t} \text{ where } K_3 = \frac{1}{K_2}.$$

or,

$$\frac{K_3}{t} = \frac{S^2}{y} - S.$$

That is, if our proposition is correct, a straight line will be obtained when $1/t$ is plotted against $1/y$ (Figs. 1 & 2). Practically all the important enzymes with uncomplicated reactions have been found to show this relation, for example, phosphatase, amylases (α and β), proteinases, lactase, lipases, etc. The detailed study will be published elsewhere.

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ELASTIC CONSTANTS OF LITHIUM FLUORIDE

AMONG the alkali halides which show a remarkable gradation in all their physical properties, lithium fluoride is an exception in many ways. The elastic constants of the substance have been determined by Schæfer and Bergmann by the ultrasonic method of setting the crystal itself into vibrations and then using it as a three-dimensional grating to a beam of light. In view of the exceptional behaviour of the substance, it was considered desirable to repeat the measurements by other ultrasonic methods and the results of the investigation are given below:—

Lithium fluoride crystallises in the regular cubic class and has an easy cleavage parallel to the cube face. The sample used in the present investigation was artificially grown and supplied by Harshaw Chemical Company, Ohio, U.S.A. Sections (100) and (110) of different thickness (1·275-1·5 mm.) have been cut and used for the measurements. The acoustic velocities in these plates were determined by both the ultrasonic wedge method developed by Bhagavantam and Bhimasenachar (1941) and the modified plate method described by the author (1948), the frequencies used ranging from 1 to 12 mc./sec. The elastic constants were evaluated from the mean acoustic velocities. The results are given in the following table. The elastic constants c's and the bulk modulus K are given in units of 10^{11} dynes/cm.^{2} and the elastic moduli s's in units of 10^{-13} cm.^{2}/dyne. The density of the substance is taken as 2·601 gm./cm.^{3}

No.	Observer	c_{11}	c_{12}	c_{44}	s_{11}	s_{12}	s_{44}	K
1	Schaefer & Bergmann	11·8	4·34	6·28	10·6	−2·85	15·9	6·82
2	Author	11·9	4·58	5·42	10·7	−2·97	18·5	7·02
3	Bridgman	..	..	..	..	..	..	8·55

In the above table, the value of K obtained experimentally by Bridgman and those calculated from the relation.

$$K = \tfrac{1}{3}(c_{11} + 2c_{12})$$

are entered in the last column.

It can be seen from the table that for c_{11} and c_{12} the values obtained by the author are in good agreement with those of Schæfer and Bergmann. For c_{44}, on the other hand, the two values differ by about 16% which is far beyond the usual experimental error. It is not possible to give any explanation for this discrepancy. However, it is interesting to point out that the author's values are in better agreement with the theoretical Cauchy relationship, *viz.*, $c_{12} = c_{44}$ for cubic crystals, which is found to hold good to a very great extent in the case of alkali halides.

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KATABATIC EFFECT OVER JODHPUR

JODHPUR is situated on the eastern edge of the Thar desert about 20 miles from the Luni river which remains dry during the greater part of the year. The nearest distance from the sea is about 270 miles to the S W. The Aravalli range running NE to SW lies SE of the station at a distance of about 70 miles. Parts of the range are as high as 2,700 ft. or over. The NE end of the range descends into the desert and the SW edge is terminated abruptly at a point slightly over 120 miles south of the station near