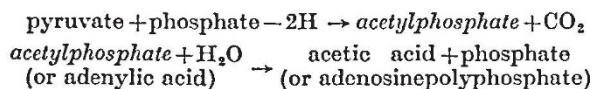


phosphate fraction, corresponding to a phosphorylation of about 25 per cent of the added adenylic acid.

From the results of this and similar experiments and the earlier work mentioned above, it is concluded that the dehydrogenation of pyruvic acid proceeds according to the following formulation:



In investigations of pyruvic acid metabolism it has long been puzzling that, although the oxidative breakdown of pyruvic acid has been found to go through a stage corresponding to acetic acid, added acetic acid is inactive in systems oxidizing pyruvic acid completely. The intermediate formation of acetylphosphate provides a reasonable explanation for the 'active' acetate, and for various acetylation processes connected with the oxidative breakdown of pyruvic acid and carbohydrate, for example, acetylation of amino-acids⁷ and of choline⁸.

Further details will appear in vol. 7 of the Cold Spring Harbor Symposium on Quantitative Biology. Acknowledgment is made of a grant from the Ella Sachs Plotz Foundation.

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¹ Lipmann, *Enzymologia*, 4, 65 (1937).

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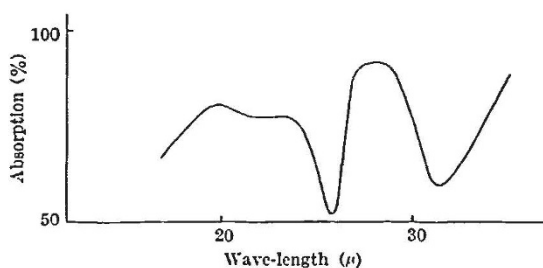
Structure of the Tetrachlorethylene Molecule

THE suggestion has been made by one of us that the vibration spectrum of tetrachlorethylene cannot be interpreted properly by a potential function involving only four or even seven force constants¹. By considering the physical meaning of the 'cross-terms', a potential function was chosen the expression for which contained thirteen force constants, the values of which were determined from experimental data. The prediction was made that two fundamental frequencies, of symmetries A_1 and A_2 respectively, occur in the far infra-red, at 400 cm^{-1} and 346 cm^{-1} .

Measurements have been made with the 'residual ray' apparatus, and with a grating spectrometer, described elsewhere². The accompanying curve (obtained by the second method) shows the absorption in the region 30 μ , due to tetrachlorethylene dissolved in paraffin.

The frequencies of the two absorption bands are 387 cm^{-1} and 332 cm^{-1} , in good agreement with the theoretical values. The slight differences may be due to the neglect of the anharmonicity and to the fact that the computed values refer to the gaseous and not to the dissolved state as in our experiments.

From the above results, it is now clear that the frequencies in the spectrum of tetrachlorethylene



cannot be correlated by means of a simple potential function as suggested before by one of us³, and by Linnett and Thompson⁴. For example, a valency force field should give 604 cm^{-1} instead of 387 cm^{-1} for A_1 .

On the other hand, it is still difficult to determine exactly the value of the C—C force constant because the interaction terms are insensitive to its variation. However, it may be substantially less than 8.5×10^5 dynes/cm. as in ethylene; and the suggested structure arising from resonance between the C—C bonds is not to be excluded since the interaction terms of the form $f_C \Delta C-C \Delta C-Cl$ and $\gamma_C \Delta C-C \Delta Cl-C-Cl$ are very important ($\sim 1.70 \times 10^5$ dynes/cm.).

Complete details will be published shortly elsewhere.

One of us (J. D.) wishes to express his thanks to Prof. C. Manneback for helpful correspondence during the preparation of the note on which the present one is based.

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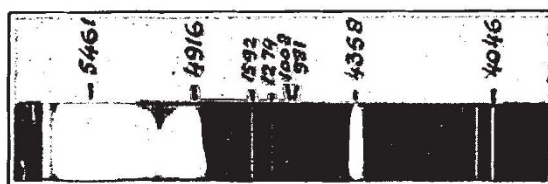
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³ Duchesne, J., *NATURE*, 139, 233, 634 (1937).

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Structure of *p*-Diphenylbenzene and its Raman Spectrum

THERE have been very few structure determinations of aromatic compounds which contain three benzene rings. The structure of *p*-diphenylbenzene of the diphenylbenzene family has been studied by L. W. Pickett¹ by the method of trial and error and Fourier analysis, and this tends to show that the molecule of this compound is planar in form. In the present investigation our object is to attack the problem from a study of the Raman spectra of such compounds.



SPECTRUM OF 4358 Å. MERCURY RADIATIONS
SCATTERED BY SOLID *p*-DIPHENYLBENZENE.