This experiment has implications beyond the synthetic calcium phosphates discussed here. It has been suggested that the mineral portions of bone and tooth tissue are calcium-deficient hydroxyapatites^{3,11}. The possible presence of hydrogen bonds in these materials may provide a much needed parameter for an estimation of the stoichiometry of these biological hydroxyapatites under varying conditions. In addition, there are many non-stoichiometric, inorganic systems in which hydrogen-bonding between electro-negative ions may provide a balance between chemical perfection and imperfection due to missing cations.

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The 1,2-Propylenediaminetetra-acetato-cobaltate(III) Anion

It is implicit in a recent theory¹ of stereospecific effects in metal complexes containing optically active diamines that the optical isomers of complexes containing only one such diamine molecule should have exactly similar conformations.

To test this matter, the infra-red spectrum in the sodium chloride region of L-potassium (*d*-propylenediaminetetra-acetato)-cobaltate(III) trihydrate was compared with that of DL-barium (*dl*-propylenediaminetetra-acetato)-cobaltate(III) octahydrate. The spectra, in 'Nujol' mulls, were identical, as predicted by theory¹. It is of interest that the infra-red spectra of *d*- and *dl*-propylenediamine tetra-acetic acids are not quite identical². This was attributed to differences in hydrogen bonding.

A further point of interest is that the spectra of the cobalt complexes show a single strong carboxylate peak at 1,647 cm⁻¹. This is good evidence for hexa-co-ordination by propylenediaminetetra-acetate, and is directly analogous to the single strong peak in the infra-red spectrum of the (ethylenediaminetetra-acetato)-cobaltate(III) anion (ref. 3). The spectra of complexes with copper(II), zinc and nickel show a splitting of this peak, presumably due to penta-co-ordination.

The cobalt complexes used were prepared by the methods given by Dwyer and Garvan². Attempts to make complexes of formula (Co(HPDТА)X)⁻, where PDТА is the propylenediaminetetra-acetate ion and X is the bromide or nitrite ion, by methods like those used by Schwarzenbach⁴ in making the corresponding complexes of ethylenediaminetetra-acetate were unsuccessful. However, the reaction mixture from the attempted introduction of nitrite ion had a visible absorption spectrum which differed from that of the (propylenediaminetetra-acetato)-cobaltate(III) anion.

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BIOCHEMISTRY

Effect of Electrolytes on the Activity of Glutamic-Oxalacetic Transaminase

In their method for the determination of glutamic-oxalacetic transaminase without precipitation of protein, Mohun and Cook¹ conducted transamination between aspartic and α -ketoglutaric acid to glutamic and oxalacetic acid in a phosphate buffer solution of pH = 7.5. Similarly, Yatizidis² used a 2 per cent solution of dipotassium hydrogen phosphate for incubation of the system previous to determining the enzyme activity in the serum.

Transaminase activity is known to be enhanced by iron Fe²⁺ and magnesium ions^{3,4} and impeded by mercury and cyanide compounds⁵. Introduction of nickel, cobalt, aluminium and manganese ions was found to produce no variation in the activity of the enzyme⁶.

As defined by Cabaud⁷, the unit of transaminase activity is that of 1 ml. of serum giving rise to 1 μ gm. of pyruvic acid in the system incubated. The activity of the serum investigated is determined by the use of a standard graph obtained from extinction measurements in hydrazone solutions of various pyruvic acid concentrations.

In the present investigation, which was carried out according to the method proposed by Mohun, the composition of the fundamental solution containing the substrate, that is, aspartic and α -ketoglutaric acid, was made to vary. In addition to the buffer solution, some electrolyte solutions as well as pure distilled water were used as solvents, simultaneously with, or instead of, the buffer. The experimental

Table 1

No.	Medium	Electrolyte introduced, in mgm. per sample	pH of system	SGO-T in Cabaud units
1	Phosphate buffer according to Mohun	9.4	7.5	22
2	Buffer-water (1:3)	2.4	7.5	33
3	Distilled water	—	5.0	34
4	Sodium chloride	8.2	4.8	25
5	Sodium chloride + (buffer-water (1:3))	10.6	7.4	24
6	Potassium chloride	9.5	4.8	29
7	Calcium chloride	1.4	4.9	43
8	Magnesium chloride	2.0	4.9	49