were recovered in the expired carbon dioxide. The choline chloroplatinate was isolated (Found: Pt, 31.69) and converted to trimethylamine chloroplatinate (Found: Pt, 36.93). The specific activities are given in the table.

Rat no.	Compound	Spec. activity counts/min./millimole
804 ♂	C^{14}-formaldehyde injected	2.33×10^6
wt., 195 g.	Choline chloroplatinate	2.37×10^4
	Trimethylamine chloroplatinate	2.19×10^4
808 ♂	Sodium C^{14}-formate injected	1.44×10^7
wt., 194 g.	Choline chloroplatinate	1.55×10^5
	Trimethylamine chloroplatinate	1.42×10^5

These results have been confirmed in similar experiments.

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RECEIVED APRIL 3, 1950

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VITAMIN B_{12}. XI. DEGRADATION OF VITAMIN B_{12} TO D_g-1-AMINO-2-PROPANOL

Sir:

Degradation of vitamin B_{12} by acid hydrolysis has yielded D_g-1-amino-2-propanol[1] which was characterized by structure examination and by synthesis.

The acid hydrolysis of vitamin B_{12} gives a product reacting with ninhydrin.[2] This product was thought to be 2-aminopropanol[3] on the basis of paper chromatographic evidence, but this conclusion has been withdrawn[4] in view of more recent results.

Vitamin B_{12} has been hydrolyzed in hydrochloric acid solution at 100°, and the dibenzoate of D_g-1-amino-2-propanol has been isolated from the products by the following sequence of purification steps: butanol–water partition, benzoylation of the water-soluble fraction, partition of the benzoates between petroleum ether (b. p. 90–100°) and water, countercurrent distribution using a mixture of petroleum ether (b. p. 90–100°) and aqueous methanol to remove benzamide and other materials, vacuum sublimation and recrystallization. The crystals melted at 73–74°; $[\alpha]^{24}D$ $-72 \pm 1°$ (*c*, 0.83 in ethanol). *Anal.* Calcd. for $C_{17}H_{17}NO_3$: C, 72.06; H, 6.05; N, 4.95. Found: C, 72.55; H, 5.88; N, 4.96.

This dibenzoate was not identical with a synthetic specimen of the dibenzoate of L_s-2-aminopropanol (m. p. 104–105°).

The free amine was regenerated by acid hydrolysis of the degradative dibenzoate, and then oxidized by addition of sodium metaperiodate. The addition of dimedon gave the corresponding derivatives of acetaldehyde and formaldehyde which were separated and identified.[5] Thus, the structure of the amine is shown to be that of 1-amino-2-propanol, a known compound.[6]

A synthesis of 1-amino-2-propanol from optically active lactic acid would confirm the identification and also give the configuration of the degradation product. Consequently, D_g-lactamide[7] was prepared from ethyl D_g-lactate,[8] which was obtained from D_g-lactic acid made by resolution of the morphine salts from DL-lactic acid.[9] Reduction of D_g-lactamide by lithium aluminum hydride by a modification of other amide reductions[10] followed by benzoylation of the product gave the dibenzoate of D_g-1-amino-2-propanol, m. p. and "mixed m. p.," 74–75°; $[\alpha]^{24}D$ $-72 \pm 1°$ (*c*, 0.82 in ethanol). *Anal.* Calcd. for $C_{17}H_{17}NO_3$: C, 72.06; H, 6.05; N, 4.95. Found: C, 72.01; H, 5.85; N, 4.92.

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RECEIVED APRIL 22, 1950

(1) The subscript g refers to glyceric aldehyde, the fundamental substance to which the configuration of the carbohydrates can be related. The subscript s refers to serine, the fundamental substance to which the configuration of the amino acids can be related: Vickery, *J. Biol. Chem.*, **169**, 237 (1947).

(2) Ellis, Petrow and Snook, *J. Pharm. and Pharmacol.*, **1**, 60 (1949).

(3) Ellis, Petrow and Snook, *ibid.*, **1**, 735 (1949); **1**, 950 (1949).

(4) Cooley, Ellis and Petrow, *ibid.*, **2**, 128 (1950).

(5) Vorländer, Ihle and Volkholz, *Z. anal. Chem.*, **77**, 321 (1929) (*C. A.*, **23**, 4646 (1929)).

(6) Levene and Haller, *J. Biol. Chem.*, **65**, 49 (1925); Levene and Walti, *ibid.*, **68**, 415 (1928); Karrer and Klarer, *Helv. Chim. Acta*, **8**, 393 (1925).

(7) Bean, Kenyon and Phillips, *J. Chem. Soc.*, 303 (1936).

(8) Purdie and Williamson, *ibid.*, **69**, 818 (1896).

(9) Patterson and Forsyth, *ibid.*, **103**, 2263 (1913).

(10) Uffer and Schlittler, *Helv. Chim. Acta.*, **31**, 1397 (1948).