

The qualitative aspect of the experimental results available in November 1957, which show the violation of the *C*- and the *P*-invariance for weak interactions, is reviewed. The methods hereby applied are betadecay of oriented nuclei, polarisation of emitted electrons in beta-decay, beta-gamma-correlation, asymmetry in the decay of μ -mesons generated by π -meson-decay. The solu-

tion of the Θ - τ -puzzle by the assumption of a single particle (*K*-meson) without defined parity is mentioned.

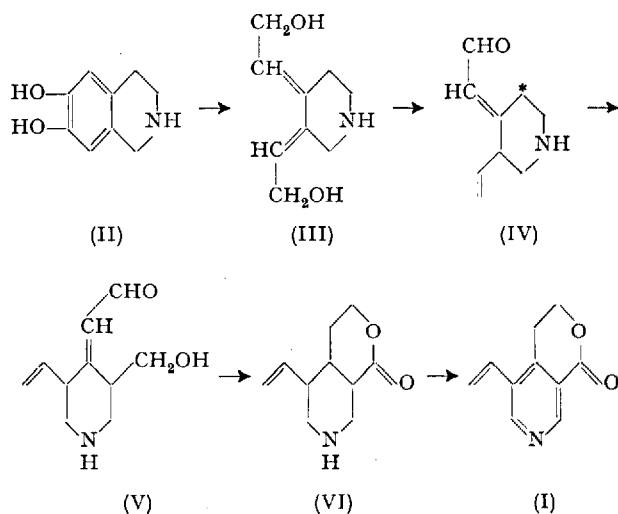
In the concluding section, some aspects of the unsolved theoretical problems of the deeper reasons for the symmetry violations of the weak interactions are briefly discussed which will possibly also lead into open cosmological questions.

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A Biogenetic Scheme for Gentianine

The alkaloid gentianine to which structure (I) has been assigned on the basis of degradation¹ and synthetic evidence², is unique in having carbon substituents at the 3-, 4-, and 5-positions of the pyridine ring. A plausible biosynthetic route to this alkaloid is suggested by the presence of two 2-carbon fragments in adjacent positions. WOODWARD fission³ of 1:2:3:4-tetrahydro-6:7-dihydroxyisoquinoline (II) would yield the pyridine (III)



which can give by oxidation-reduction and dehydration, the vinyl compound (IV). Attack at the allylic (starred) position in (IV) by formaldehyde or equivalent⁴ would give the alcohol (V), which through oxidation-reduction

to the lactone (VI) and dehydrogenation would yield gentianine (I). The sequence of steps outlined here need not be the same in the plant, but it is of interest that gentianine furnishes the simplest example of an alkaloid whose formation is best explained by invoking a WOODWARD fission.

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Zusammenfassung

Für die Biogenese des Gentianins wird ein plausibles Reaktionsschema vorgeschlagen.

Testosterone and Methyltestosterone from Hyodesoxycholic Acid

A recent report¹ from these Laboratories described the conversion of hyodesoxycholic acid (3 α , 6 α -dihydroxycholic acid) (I), the main constituent of hog-bile into the corpus luteum hormone - progesterone. The present communication is a logical extension of these studies to include the preparation of analogous male sex hormones - testosterone and its synthetic homologue, methyltestosterone (VIII).

The diacetate of 3 α , 6 α -dihydroxypregnan-20-one (II), readily obtained¹ from the bile acid (I) in 55% yield by the Meystre-Miescher degradation, was enol-acetylated in carbon tetrachloride solution with acetic anhydride and a trace of perchloric acid (70-72%)². In view of the geometrical isomers, anticipated on the formation of the Δ^{17} -double bond³, no attempt was made to isolate the triacetate (III), which was directly

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² T. R. GOVINDACHARI, K. NAGARAJAN, and S. RAJAPPA, *J. chem. Soc. 1957*, 2725.

³ R. B. WOODWARD, *Nature* 162, 155 (1948).

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³ C. W. MARSHALL, T. H. KRITCHEVSKY, S. LIEBERMAN, and T. F. GALLAGHER, *J. Amer. chem. Soc.*, 70, 1837 (1948). - L. F. FIESER and HUANG-MINLON, *J. Amer. chem. Soc.*, 71, 1840 (1949).