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The Role of the Cyclotrons in Photosynthesis Research

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Since the nineteenth century, biochemists and physiologists from all around the world tried to elucitade the pathways of intermediary metabolism of living organisms as for instance, in higher plants:

« One cannot emphasize too strongly that in the plant the synthesis of all organic substances must revert to the initial mechanism involved in the synthesis of carbohydrates, so that the synthesis of proteins, fats, alkaloids, acids, etc., is in the last analysis dependent upon the photosynthetic mechanism » (R. A. Gortner, Outlines of Biochemistry, 1929).

« En raison des relations certaines des glucosides avec les hydrates de carbone, des relations possibles des albuminoïdes avec les alcaloïdes, fournir aux questions posées une réponse définitive, ce sera résoudre, en grand partie, le problème des cycles de l'azote et du carbone » (A. Goris, Localisation et rôle des alcaloïdes chez les végétaux, 1914).

Only with the indispensable help of radioactive tracer techniques, notably C-14 position-specific putative precursor, that fundamental advances in the field of molecular biology of plants were made. Here, we discuss how the invention of the cyclotron by Ernest O. Lawrence and his coworkers in the 1930s was a crucial step to trace the path of carbon in photosynthesis, thus allowing effective progress in life sciences.

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