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PREVIEW

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**SOME FULLY ACETYLATED SUGAR ACIDS  
AND THEIR DERIVATIVES**

**by**

**Gordon Bradbury Robbins**

**A THESIS**

**Presented to the Faculty of  
The Graduate College in the University of Nebraska  
In Partial Fulfillment of Requirements  
For the Degree of Doctor of Philosophy  
Department of Chemistry**

**Lincoln, Nebraska**

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## FULLY ACETYLATED SUGAR ACIDS AND THEIR DERIVATIVES.

### INTRODUCTION

The acetylated sugars have long been important derivatives of this class of compounds. This importance has been due to the relation of these compounds to synthetic reactions and to theoretical considerations regarding their rotatory power.

The acetylated sugar acids have not met with such wide study. Compounds of this type have been described only in comparatively recent times. The first acetylated acid which was reported was 2,3,4,6-tetraacetyl-d-gluconic acid monohydrate. This compound was prepared by Upson and Barts<sup>1,2</sup> in this laboratory through acetylation of the delta gluconolactone with acetic anhydride and zinc chloride. The first fully acetylation acid was pentaacetyl-d-gluconic acid monohydrate which was reported by the same workers<sup>2</sup> through further acetylation of the tetraacetyl acid.

Derivatives of the fully acetylated acids have been known for longer periods. One of the earliest of these was ethyl pentaacetyl-d-gluconate which Volpert<sup>3</sup> prepared by acetylation of ethyl gluconate.

Nitriles of a number of fully acetylated acids have been prepared by Wohl<sup>4</sup> in connection with his process for degrading an aldose by one carbon atom. This method involves acetylation of the aldose oxime. Zemplen<sup>5</sup> has widely applied this reaction.