

**A STUDY OF
COLOPHONY RESIN;
A DESSERTATION**

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A Study of colophony resin; a Dissertation by Hermann A. Loos

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HERMANN A. LOOS

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COLOPHONY RESIN;
A DESSERTATION**

It is with the deepest regret that the death of the author of this thesis must be announced with its issue.

Before the completion of this publication, DR. LOOS accepted the appointment as Chemist for the Copper Corporation of Chili, and sailed for Chañaral in the latter part of June. While enroute he was stricken with yellow fever and died on the seventeenth of July, nineteen hundred, in his twenty-fifth year.

A Study on Colophony Resin.

A DISSERTATION

Submitted in Partial Fulfillment of the Requirements for the
Degree of Doctor of Philosophy in the Faculty of Pure
Science of Columbia University

BY

Hermann A. Loos, B.S., A.M.

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H. A. L.

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INTRODUCTION.

In spite of the industrial importance of colophony resin, the nature of its constituents is not thoroughly understood and even the composition of its principal acid has long been a subject of controversy. Most of the work of a purely chemical nature has been directed toward the determination of a formula for abietic acid. The literature of the subject is full of contradictions and disparities of all sorts, and the following work has been undertaken with the hope of throwing some light on the disputed points and of determining the true composition of abietic acid by means of products of the greatest attainable purity. Much work has already been done with rosin, of an analytical and a technical nature; but this has been largely empirical, and it is probable that a better knowledge of the chemistry of this substance, and of the character of the salts it forms, will lead to many improvements in these directions.

The first part of this work is devoted to a discussion of the sources and constituents of crude colophony, together with some experimental work on the presence and formation of abietic anhydride, and the relation of the acid to the ordinary oxidation products of turpentine. An historical review is then given of the literature on abietic and other acids supposed present in colophony, and this is followed by a description of the experimental work done in preparing pure abietic acid and determining its formula. The last part of the thesis is devoted to a description of the preparation and properties of some salts of this acid and of the changes they were noticed to undergo as the result of hydrolysis and the effect of sunlight.