

**HINTS ON PAINTING
STRUCTURAL STEEL AND NOTES
ON
PROMINENT PAINT MATERIALS:
A HANDBOOK FOR PAINT-USERS**

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Hints on painting structural steel and notes on prominent paint materials: a handbook for paint-users by Houston Lowe

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HOUSTON LOWE

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HINTS
ON
Painting Structural Steel
AND NOTES ON PROMINENT
PAINT MATERIALS



A HANDBOOK FOR PAINT-USERS
By HOUSTON LOWE

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INTRODUCTION

To First Edition

ABOUT thirty years ago practice in the making of Linseed Oil, Varnishes, Japans, and Colors first brought the writer into daily contact with questions regarding the manipulation of paint, its properties, and the results of the various operations to which it was subjected. Painters, engineers, architects, builders, constructors, etc., have since been continuously asking questions whose answers involved thought and experiment.

At one time paintmaking was an art, then it became a trick, now it is a science. This little handbook is written by a paintmaker, and is the direct result of study recently given to the manufacture and properties of structural steel and the use of paint in its preservation. It is published in the hope that some of the mysteries heretofore associated with the paint business may be cleared up.

DAYTON, O., 1899.

INTRODUCTION

To the Fourth Edition

SINCE the first edition of this book the writer has continued his observations, experiments, and tests on a more elaborate scale than ever before, assisted by his colleagues, Mr. John R. Dempsey (Painter) and Mr. Donald A. Kohr (Chemist), to whom he hereby makes grateful acknowledgment.

Increasing knowledge and experience have served to strengthen his faith in the hypothesis under which he has been working.

April 1, 1905.

HYPOTHESIS

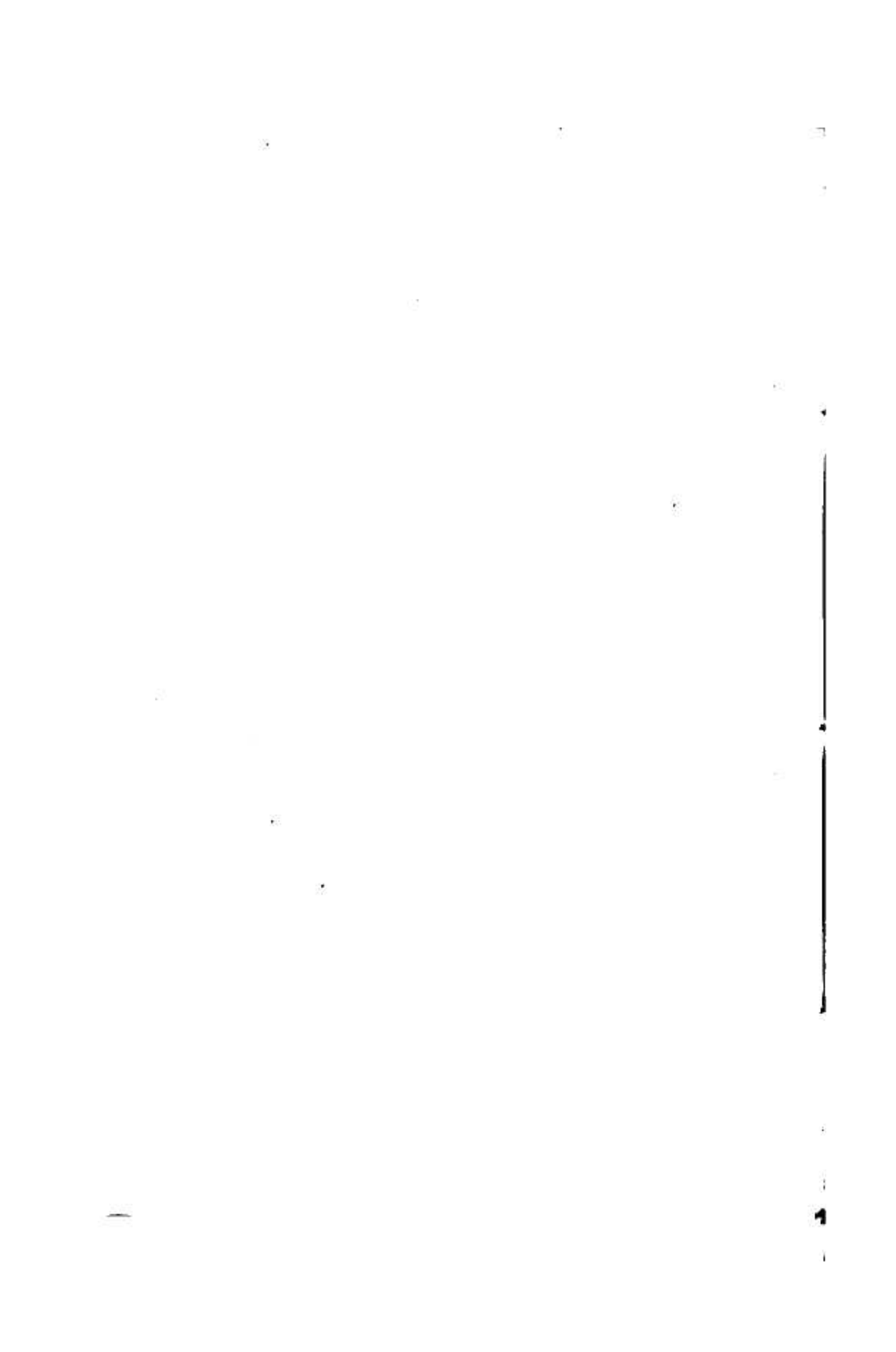
"The earth hath bubbles, as the water has, and these are of them."

—*Shakspeare.*

"**S**UBSTANTIAL progress in any science is impossible in the absence of a working hypothesis, which is universal in its application to the phenomena pertaining to the subject matter."

Paintmaking has been rescued from the domain of empiricism and has become an exact science. One skilled in it can now practice it with a certainty of results, in an exact proportion to his knowledge of its principles, and to his ability in applying them to work in hand.

The theory that oil, or the binder, is the life of Paint, that is, the thing that makes it wear, is misleading, and has been the cause of most of the blunders and failures with it in the past. An excess of linseed oil in paint is as much an adulteration of paint as the introduction of a useless or harmful pigment. We work upon the hypothesis that the solids are coefficient with the liquids in producing the best materials, and that the secret, if there be any, lies in the proper adjustment or determination of the amount and kind of each needed to secure a perfect product. No amount of theoretical and empirical knowledge can determine questions of this kind. There are to-day many signs, however, that in the struggle for victory men are accepting the logical conclusion from classified facts, their mutual relations and sequences, that properly prepared paint is bound to win out, because it is based upon "sound idealism." The "crude materialism" of the advocates and exploiters of this, that, and the other "pure" pigment or binder, is but a relic of past ignorance, or worse, and is doomed to lose its force and to find its proper place.



PAINT AND PAINTING

"Blind fear that seeing reason leads, finds safer footing than blind reason stumbling without fear."

—*Shakspeare.*

PAINT

"Give it to me to use! I mix it with two in my thought."

—*Browning.*

PAINT is pigment plus binder, plus paintmaker. Paints for steel may be divided into three general classes, namely, Oil Paints, Varnish or Resin Paints, and Tar Paints.

We are now treating of Oil Paints, that is, pigment mixed and mullied with oil, and especially designed to preserve, to protect, and to better the appearance of surfaces to which they are applied.

In Oil Paints of value the end aimed at is a close union of solids or pigment and liquids or binder, i. e., we take inorganic or solid matter in a finely divided state and mix with it organic or liquid matter, and then try to link them together either mechanically or chemically. Ordinary mechanical mixtures in which the solids and liquids have little or no affinity for each other, or in which the powders are feebly suspended in the liquid, scarcely deserve the name of paint.

The essentials of a preservative and protective covering for structural steel may be stated as follows :

I. **MECHANICAL PROPERTIES.** That it must work properly, that is, offer but a slight resistance to the stroke of the brush, and be of such fluid nature as to flow to-