

**THE DYEING INDUSTRY;
BEING A THIRD EDITION OF
"DYEING IN GERMANY
AND AMERICA"**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649182053

The dyeing industry; being a third edition of "Dyeing in Germany and America" by S. H. Higgins

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

S. H. HIGGINS

**THE DYEING INDUSTRY;
BEING A THIRD EDITION OF
"DYEING IN GERMANY
AND AMERICA"**

PUBLICATIONS OF THE UNIVERSITY OF MANCHESTER

ECONOMIC SERIES

No. VI

THE DYEING INDUSTRY

Published by the University of Manchester at
THE UNIVERSITY PRESS (H. M. McKECHNIE, Secretary)
12 LIME GROVE, OXFORD ROAD, MANCHESTER

LONGMANS, GREEN & CO.

LONDON : 29 Paternoster Row

NEW YORK : 443-449 Fourth Avenue and Thirtieth Street

BOMBAY : 8 Hornby Road

CALCUTTA : 308 Bowbazar Street

MADRAS : 167 Mount Road

THE DYEING INDUSTRY

BEING A THIRD EDITION OF
"DYEING IN GERMANY AND AMERICA"

UNIVERSITY OF
CALIFORNIA

BY

S. H. HIGGINS, M.Sc.

LATE GARTSIDE SCHOLAR OF THE UNIVERSITY AND DEMONSTRATOR IN DYEING,
MANCHESTER COLLEGE OF TECHNOLOGY; DYERS COMPANY GOLD MEDALLIST FOR
RESEARCH, 1912; TECHNICAL CHEMIST AND WORKS MANAGER

MANCHESTER :

AT THE UNIVERSITY PRESS

12 Lime Grove, Oxford Road

LONGMANS, GREEN & CO.

London, New York, Bombay, etc.

1919

HD9999
D9H5
1919

PUBLICATIONS OF THE UNIVERSITY OF MANCHESTER

No. CVIII

Exchange

First Edition 1907
Second Edition October 1916
Third Edition September 1919

All Rights Reserved.

PREFACE

I HAVE seized the opportunity presented by the need for a new edition of this book to add a new chapter on recent progress in the Industry, founded on my articles in *Annual Reports on Applied Chemistry* issued by the Society of Chemical Industry, 1917-1918. These reports have also been utilised to provide some of the information given in the new chapter on Colour Production. Since the book now deals as substantially with the Industry in Great Britain as it does with the Industry in other countries, it seems logical to change the title which it bore in previous editions, "Dyeing in Germany and America," into the one which is now used. It is gratifying to find that the book has been deemed worthy of translation and that an edition in French will soon make its appearance.

S. H. H.

MANCHESTER,
September 1919.

PREFACE TO THE SECOND EDITION OF "DYEING IN GERMANY AND AMERICA"

THE first edition of this book was issued in 1907 as "a Report to the Electors of the Gartside Scholarship of the University of Manchester on the Results of a Tour in the United States of America and Germany in 1905-1906," and was intended to give a general survey of the dyeing and allied industries of these countries.

The very favourable reception awarded to the book has exhausted the supply of copies and necessitated the issue of this new edition. Although no further visit has been paid to either of the countries, I have been able to add considerably to what appeared in the first edition, chiefly as the result of experience gained during the past nine years, firstly as a demonstrator in the Dyehouse of the Manchester College of Technology, and secondly, as a works chemist and manager. Naturally, this experience is most in evidence in those parts of the book dealing with the branches of the industry with which I am the most familiar. I have also taken the liberty of including certain material which I have published in various journals since the issue of the first edition.

It is hoped that this edition will be useful to the student requiring a general knowledge of the industry, to the publicist seeking a comparison between the industrial conditions in this and other countries, to the general reader, and also to the practical dyer, who may find in these pages some things of value and interest to him.

In the preparation of this edition I have received much assistance from the many helpful suggestions made by reviewers when the book was first published. I am also indebted to these gentlemen for the rectification of several errors which appeared therein. I wish to place on record my appreciation of the care taken in the publication of the present edition by H. M. McKechnie, Esq., Secretary of the Manchester University Press; also to repeat my thanks to Arthur Jones, Esq., M.A., for the help he gave me with the first edition.

S. H. HIGGINS.

LUNCARTY, PERTH, N. B.,
July 1916.

CONTENTS

	PAGE
PREFACE	v
PREFACE TO THE SECOND EDITION	vi
CHAPTER I	
GENERAL	1
The art of dyeing—Influence of chemistry—Opposition to progress— Hank-dyeing and washing—Cloth-dyeing.	
CHAPTER II	
COP-DYEING	6
Its object—Selection of colours—The difficulties involved—Machines of two classes—Comparison of these machines—Three important machines— Perfection not attained.	
CHAPTER III	
SULPHUR COLOURS AND INDIGO	12
Fastness of sulphur colours—Importance as cotton dyes—Their tender- ing action on cotton—Use for wool dyeing—Machines used for dyeing sulphur colours—Natural and synthetic indigo—Substitutes for indigo— Sulphur blues and indigo.	
CHAPTER IV	
MERCERISING	20
Invention of the process—Hank-mercerising machines—Piece merceris- ing—Cooling of the lye—Recovery of the caustic soda—Recent scientific work on mercerising.	
CHAPTER V	
BLEACHING	31
Development of the industry—Effect of chemistry—Efficient scouring— Continuous scouring—Open-width scouring—Electrolytic bleaching— Steeping of goods—The waxes of vegetable fibres—Bleaching without boiling.	
CHAPTER VI	
GERMAN AND ENGLISH FLANNELETTES	43
Use of raising—Cotton blankets—German production—Large-scale pro- duction—German and English methods compared—External and internal specialisation—Inflammability of flannelettes.	
CHAPTER VII	
THE INDUSTRY IN THE UNITED STATES	49
American conditions—Scarcity of labour—Large-scale production— Uncertainty of their industry—Lack of specialisation—Effect of the tariff.	