

**THE
CARBOHYDRATES
AND ALCOHOL**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649412846

The Carbohydrates and Alcohol by Samuel Rideal

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

SAMUEL RIDEAL

**THE
CARBOHYDRATES
AND ALCOHOL**

INDUSTRIAL CHEMISTRY

BEING A SERIES OF VOLUMES GIVING A
COMPREHENSIVE SURVEY OF

THE CHEMICAL INDUSTRIES

EDITED BY SAMUEL RIDEAL, D.Sc. LOND., F.I.C.
FELLOW OF UNIVERSITY COLLEGE, LONDON

ASSISTED BY

JAMES A. AUDLEY, B.Sc., F.I.C.	R. S. MORRELL, M.A., Ph.D., F.I.C.
W. BACON, B.Sc., F.I.C., F.C.S.	J. R. PARTINGTON, M.A., Ph.D.
E. DE BARRY BARNETT, B.Sc., A.I.C.	ARTHUR E. PRATT, B.Sc., Assoc. R.S.M.
M. BARROWCLIFF, F.I.C.	ERIC K. RIDEAL, M.A., Ph.D., F.I.C.
H. GARNER BENNETT, M.Sc.	W. H. SIMMONS, B.Sc., F.I.C.
F. H. CARR, F.I.C.	R. W. SINDALL, F.C.S.
S. HOARE COLLINS, M.Sc., F.I.C.	HUGH S. TAYLOR, D.Sc.
H. C. GREENWOOD, O.B.E., D.Sc., F.I.C.	A. DE WAELE, B.Sc., A.I.C.
	C. M. WHITTAKER, B.Sc.

&c., &c.

THE
CARBOHYDRATES
AND ALCOHOL

BY
SAMUEL RIDEAL, D.Sc., F.I.C.
AND ASSOCIATES

Library of
CALIFORNIA



NEW YORK
D. VAN NOSTRAND COMPANY
EIGHT WARREN STREET

1920

GENERAL PREFACE

THE rapid development of Applied Chemistry in recent years has brought about a revolution in all branches of technology. This growth has been accelerated during the war, and the British Empire has now an opportunity of increasing its industrial output by the application of this knowledge to the raw materials available in the different parts of the world. The subject in this series of handbooks will be treated from the chemical rather than the engineering standpoint. The industrial aspect will also be more prominent than that of the laboratory. Each volume will be complete in itself, and will give a general survey of the industry, showing how chemical principles have been applied and have affected manufacture. The influence of new inventions on the development of the industry will be shown, as also the effect of industrial requirements in stimulating invention. Historical notes will be a feature in dealing with the different branches of the subject, but they will be kept within moderate limits. Present tendencies and possible future developments will have attention, and some space will be devoted to a comparison of industrial methods and progress in the chief producing countries. There will be a general bibliography, and also a select bibliography to follow each section. Statistical information will only be introduced in so far as it serves to illustrate the line of argument.

Each book will be divided into sections instead of chapters, and the sections will deal with separate branches of the subject in the manner of a special article or monograph. An attempt will, in fact, be made to get away from

the orthodox textbook manner, not only to make the treatment original, but also to appeal to the very large class of readers already possessing good textbooks, of which there are quite sufficient. The books should also be found useful by men of affairs having no special technical knowledge, but who may require from time to time to refer to technical matters in a book of moderate compass, with references to the large standard works for fuller details on special points if required.

To the advanced student the books should be especially valuable. His mind is often crammed with the hard facts and details of his subject which crowd out the power of realizing the industry as a whole. These books are intended to remedy such a state of affairs. While recapitulating the essential basic facts, they will aim at presenting the reality of the living industry. It has long been a drawback of our technical education that the college graduate, on commencing his industrial career, is positively handicapped by his academic knowledge because of his lack of information on current industrial conditions. A book giving a comprehensive survey of the industry can be of very material assistance to the student as an adjunct to his ordinary textbooks, and this is one of the chief objects of the present series. Those actually engaged in the industry who have specialized in rather narrow limits will probably find these books more readable than the larger textbooks when they wish to refresh their memories in regard to branches of the subject with which they are not immediately concerned.

The volume will also serve as a guide to the standard literature of the subject, and prove of value to the consultant, so that, having obtained a comprehensive view of the whole industry, he can go at once to the proper authorities for more elaborate information on special points, and thus save a couple of days spent in hunting through the libraries of scientific societies.

As far as this country is concerned, it is believed that the general scheme of this series of handbooks is unique, and it is confidently hoped that it will supply mental

GENERAL PREFACE

vii

munitions for the coming industrial war. I have been fortunate in securing writers for the different volumes who are specially connected with the several departments of Industrial Chemistry, and trust that the whole series will contribute to the further development of applied chemistry throughout the Empire.

SAMUEL RIDEAL.



AUTHOR'S PREFACE

THE industries briefly summarized in the present volume in their modern applications have reached a considerable magnitude and involve considerations of an economic character which must be based upon accurate chemical data for future development. A student making a choice of industrial chemical work is apt to think that the industries dealing with starch, sugar, and alcohol, do not afford much scope for the application of chemical principles; but this book may serve to dispel such an erroneous view, and show that not only is a fairly wide knowledge of the chemical constitution of these sugars and their synthesis, formation in the plant and in the laboratory important, but that their decomposition products involve biochemical changes of great interest which cannot fail to be of value in establishing new world conditions of exchange.

Many of the problems specially appeal to the British public, and afford considerations of tropical agriculture and chemical manufacture under economic conditions of power and labour which may modify future progress. It is impossible within the scope of a single volume more than to glance at these varied developments, but it is hoped that the outline here presented may be of interest to many readers, and stimulate greater interest in this country in some of the industries which hitherto as a nation we have not taken into sufficient account. It has been difficult to avoid