

**THE CENTURY SCIENCE
SERIES. JUSTUS VON
LIEBIG: HIS LIFE
AND WORK (1803-1873)**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649621057

The Century Science Series. Justus Von Liebig: His Life and Work (1803-1873) by W. A. Shenstone

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

W. A. SHENSTONE

**THE CENTURY SCIENCE
SERIES. JUSTUS VON
LIEBIG: HIS LIFE
AND WORK (1803-1873)**

© THE CENTURY SCIENCE SERIES

„JUSTUS VON LIEBIG“

HIS LIFE AND WORK

(1803—1873)

BY

W. A. SHENSTONE, F.I.C.

Lecturer on Chemistry in Clifton College



New York

MACMILLAN & CO.


1896,

390
25

PREFACE.

THE name of Liebig is doubtless familiar to most of us, but I fear that very few have any clear idea what he did, why chemists admire and esteem him, or, indeed, are aware that they do admire and esteem him. As the result of many inquiries, made among cultivated people, I have found the prevailing impression concerning Liebig to be that he was a man who gained a large fortune by making "extract of meat." Now and then one meets someone who "seems to have heard" of his name in connection with agriculture. Scarcely anyone, now, seems to know that he was one of the greatest of that class in whose work Mr. Balfour finds "the causes which, more than any others, conduce to the movements of great civilised societies." I have therefore made it my object, in writing this little book, not so much to dwell upon Liebig's private life as to tell what he was, what he did, and why all chemists and all those who are versed in the history of science admire and esteem him so greatly.

Fortunately for my purpose, most of Liebig's work is not only of great general interest, but it lends itself admirably to a non-technical method of treatment. Consequently, I have only found it necessary to employ the language of chemistry in parts of two chapters. As I have been careful to explain technical *terms when I have used them*, and as I have not very



often employed them, I do not think they will be a real source of difficulty or repel anyone.

If any chemist should read this life of Liebig, he may not improbably feel disposed to complain that it does something less than justice to Liebig's labours in pure chemistry. I admit that this is very true. But it is right that it should be so, for, vast as were Liebig's services to pure chemistry, they lack in some degree the splendour of his contributions to some other departments of equal intrinsic importance and of far wider general interest.

In concluding these few introductory words, I desire to express my thanks to several very kind helpers: to Liebig's son, Dr. Georg Baron Liebig, who has assisted me most graciously in several ways; to my friend and colleague, H. Clissold, who has most carefully read the proofs for me; and to my wife, who has very materially lightened my task by helping me to go through the greater part of the numerous bulky volumes which contain Liebig's published correspondence.

W. A. S.

Clifton, May, 1895.

CONTENTS.

	PAGE
CHAPTER I.—INTRODUCTION	9
„ II.—LIEBIG AND WÜHLER	25
„ III.—CHEMICAL DISCOVERIES	40
„ IV.—LIEBIG AND DUMAS	51
„ V.—FERMENTATION	64
„ VI.—CHEMISTRY OF AGRICULTURE	80
„ VII.—PHYSIOLOGICAL CHEMISTRY	126
„ VIII.—EDUCATIONAL AND OTHER WORK	173
„ IX.—CHARACTER AND LATER YEARS	197



JUSTUS VON LIEBIG:

HIS LIFE AND WORK.



CHAPTER I.

Introduction—Early Life and Tastes—His Wander-Year—Appointment at Giessen—Method of Organic Analysis—Some other Contributions to Chemical Method.

It is remarkable that in spite of the epoch-making character of Liebig's contributions to chemistry, to agriculture, to physiology, and to the advancement of education, and in spite of the fact that his name is still a household word over a large part of two continents, no comprehensive or popular account of his life and work has yet been written, though it is more than twenty years since death robbed us of one of the greatest men of this or perhaps of any other century.

Of Faraday—who lived and worked like Liebig, one might almost say with Liebig, when, to men of science, the times were young—we have already two lives, those of Dr. Bence Jones and of Dr. Gladstone. Of Pasteur, Liebig's great opponent on the question of the cause of fermentation, whose personality stands out to-day only less distinctly than did that of Liebig fifty years ago, we have a delightful, if rather one-sided, account written by his son-in-law, M. Valery Radot. But of Liebig, perhaps the greatest and the most many-sided of all, we have as yet



Photo by Franz Hartmann, Munich.

JUSTUS VON LIEBIG.

Born May 12, 1803.

Died April 16, 1873.