

**PETROLEUM AND ITS PRODUCTS: AN
ACCOUNT OF THE HISTORY, ORIGIN,
COMPOSITION, PROPERTIES, USES,
AND COMMERCIAL VALUE ETC. OF
PETROLEUM**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649500246

Petroleum and Its Products: An Account of the History, Origin, Composition, Properties, Uses, and Commercial Value Etc. of Petroleum by A. Norman Tate

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

A. NORMAN TATE

**PETROLEUM AND ITS PRODUCTS: AN
ACCOUNT OF THE HISTORY, ORIGIN,
COMPOSITION, PROPERTIES, USES,
AND COMMERCIAL VALUE ETC. OF
PETROLEUM**

J. W. Davie

PETROLEUM AND ITS PRODUCTS:

AN ACCOUNT OF THE

HISTORY, ORIGIN, COMPOSITION, PROPERTIES, USES, AND
COMMERCIAL VALUE, &c.,

OF.

PETROLEUM,

THE METHODS EMPLOYED IN REFINING IT, AND THE
PROPERTIES, USES, &c., OF ITS PRODUCTS.

BY

A. NORMAN TATE, F.C.S.,

ANALYTICAL CHEMIST,

HONORARY SECRETARY TO THE LIVERPOOL CHEMISTS' ASSOCIATION.

The right of Translation is reserved.

LONDON:

JOHN W. DAVIES, 54, PRINCES STREET,
LEICESTER SQUARE.

LIVERPOOL: H. GREENWOOD, 32, CASTLE STREET.

1883.

W

P R E F A C E .

PETROLEUM has now become a very important article of commerce, and information concerning it is much required, especially as many erroneous opinions respecting its properties, &c., are prevalent. A large amount of information is scattered through the pages of our numerous periodicals; but there does not exist, as far as I am aware, any work specially devoted to the subject of Petroleum. In order, therefore, to supply, to some extent, the want which was felt for such a work, I have prepared this small book, which I trust may be found useful in diffusing a knowledge of a very interesting and valuable substance. It is impossible, in a small volume like this, to include all that is known of Petroleum, especially as every day is bringing to light new facts concerning it; but I have endeavoured in the following pages to give as complete an account of the crude Oil, and its various products, as my space would allow. To those who wish to keep themselves well posted up on the subject, I would recommend a perusal

of some of our standard periodicals; and, amongst others which I have found to contain the most reliable information, and which I have largely availed myself of in preparing this book, I may particularly mention the *Pharmaceutical Journal*, *Chemical News*, *Technologist*, and *Oil Trade Review*.

In conclusion, I would acknowledge, with thanks, the kindness of those gentlemen who have assisted me in obtaining information. To Messrs. Holt and Banner, of this town, I am particularly indebted, not only for the information which they have given me, but also for a large number of samples of Petroleum and products, which have been of great use to me in my analyses, &c. I am also indebted to Alexander S. Macrae, Esq., a gentleman well known in the Petroleum trade, for several samples which he kindly supplied to me for the purpose of illustrating a lecture, which I delivered on the subject at the Liverpool Free Public Library, in December last. These samples have been of much service to me in my examinations.

A. NORMAN TATE.

LABORATORY, 79a, LORD STREET, LIVERPOOL,
July 28th, 1863.

INDEX.

CHAPTER I.

HISTORY.

	PAGE
Petroleum known to the Ancients - - - - -	1
Dead Sea - - - - -	2
Wells in the Ionian Islands, and the Island of Zante - - -	2
Pagan Fires - - - - -	2
Italian and Sicilian Springs - - - - -	2
Wells in Persia - - - - -	2
Rangoon Oil - - - - -	2
Petroleum known to the early French Settlers in America	3
Old Wells and Apparatus, described by Dr. Hildreth, in 1836 - - - - -	3
Geological Reports of Western Canada - - - - -	3
Deposits of Bitumen at Enniskillen - - - - -	3
Commencement of the present trade - - - - -	4

CHAPTER II.

WHERE AND HOW OBTAINED.

Localities where Petroleum is found - - - - -	5
Means of obtaining the Oil at Rangoon - - - - -	7
Sinking of Wells in America - - - - -	8
Descriptions of Oil Wells - - - - -	12
Shaw's Well - - - - -	14
Quantity of Oil yielded by different Wells - - - - -	20
Means of carrying the Oil from the Wells to the Shipping Ports - - - - -	22
Supply - - - - -	22

CHAPTER III.

ORIGIN OF PETROLEUM.

	PAGE
Geology - - - - -	24
Theories of Origin—Distillation Theory - - - -	26
Composition of Petroleum and Coal Oils compared - - -	27
Bituminous and Lignitic Shales - - - - -	30
Supposed formation of Petroleum by Decay of Vegetable Matter, &c. - - - - -	30
Supposed Animal Origin - - - - -	38

CHAPTER IV.

PROPERTIES AND COMPOSITION.

Difference in Character of Oil from different localities - - -	35
Explosive Properties of Petroleum - - - - -	36
Popular Fallacies - - - - -	36
Odour of Petroleum - - - - -	37
Removal of Odour - - - - -	37
Products of Distillation - - - - -	38
Composition of Rangoon Oil - - - - -	39
Petroleum of Sehne - - - - -	40
American Petroleum - - - - -	40
Results of Mr. Schlorlemmer's Investigations - - - -	40
Results of Investigations by MM. J. Pelouze and A. Cahours -	41
Benzole in Petroleum - - - - -	42
Other Analyses of Petroleum - - - - -	42

CHAPTER V.

USES.

Uses of Rangoon Oil - - - - -	46
Of Trinidad Asphaltum - - - - -	46
Persian Asphalt - - - - -	46
Petroleum as Fuel - - - - -	47

	INDEX.	74 iii
		PAGE
French Commission	- - - - -	47
Petroleum Gas	- - - - -	48
Experiments at Homer and Courtland	- - - - -	48
Mr. G. Bower's Experiments, &c.	- - - - -	57

CHAPTER VI.

REFINING.

General Method of Refining	- - - - -	66
Stills	- - - - -	67
Condensers	- - - - -	68
Washers	- - - - -	71
Mr. Gondie's Washer	- - - - -	73
Prentiss's Process and Apparatus	- - - - -	76
Price's Patent Candle Company's Process	- - - - -	80

CHAPTER VII.

PRODUCTS OF PETROLEUM.

Kerosene	- - - - -	81
Spirit	- - - - -	81
Burning Oil	- - - - -	83
Dangerous Lamp Oils	- - - - -	84
Caasartelli's Apparatus	- - - - -	86
Illuminating Power of Burning Oil	- - - - -	88
Lubricating Oils	- - - - -	90
Lubricating Greases	- - - - -	91
Coke	- - - - -	91
Wax	- - - - -	92

CHAPTER VIII.

OPPOSITION TO THE INTRODUCTION OF PETROLEUM.

Sources of Opposition	- - - - -	94
Objections on Account of Explosive Properties	- - - - -	95

	PAGE
Act of Parliament - - - - -	98
Opposition on account of Smell - - - - -	100
Meeting at Birkenhead - - - - -	101
Cause of Nuisance - - - - -	104
Consequences of Opposition - - - - -	105

CHAPTER IX.

TRANSPORT OF PETROLEUM FROM AMERICA.

Great Expense of Transport - - - - -	106
Carriage in Ships - - - - -	107
Iron Tank Vessels - - - - -	107
Delf and Gibson's Patent - - - - -	108
Public Companies - - - - -	108
Mr. King's Plan for Loading and Discharging Petroleum - - - - -	110

CHAPTER X.

MISCELLANEOUS.

Table of Exports of Petroleum from New York, during 1861 and 1862 - - - - -	112
Exports from United States during first half of the years 1862 and 1863 - - - - -	113
Exports from all American Ports - - - - -	115
Table of Prices - - - - -	115
Persons and Capital Employed - - - - -	115
Directions for Use of Lamps - - - - -	116