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BRITISH
MANUFACTURING INDUSTRIES.

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EDITED BY

G. PHILLIPS BEVAN, F.G.S.

ACIDS, ALKALIES, SODA, AMMONIA, AND SOAP,

By PROFESSOR CHURCH, M.A., F.C.S. (The Agricultural College, Cirencester).

OILS AND CANDLES,

By W. MATTIEU WILLIAMS, F.C.S., F.R.A.S.

GAS AND LIGHTING,

By R. H. PATTERSON, F.S.S. (late Metropolitan Gas Referee).



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PREFACE.

THE object of this series is to bring into one focus the leading features and present position of the most important industries of the kingdom, so as to enable the general reader to comprehend the enormous development that has taken place within the last twenty or thirty years. It is evident that the great increase in education throughout the country has tended largely to foster a simultaneous interest in technical knowledge, as evinced by the spread of Art and Science Schools, Trade Museums, International Exhibitions, &c.; and this fact is borne out by a perusal of the daily papers, in which the prominence given to every improvement in trade or machinery attests the desire of the reading public to know more about these matters. Here, however, the difficulty commences, for the only means of acquiring this information are from handbooks to the various manufactures (which are usually too minute in detail for general instruction), from trade journals, and the reports of scientific societies; and to obtain and systematize these scattered details is a labour and a tax upon time and patience

which comparatively few persons care to surmount. In these volumes all these facts are gathered together, and presented in as readable a form as is compatible with accuracy and a freedom from superficiality; and though they do not lay claim to being a technical guide to each industry, the names of the contributors are a sufficient guarantee that they are a reliable and standard work of reference. Great stress is laid on the progressive developments of the manufactures, and the various applications to them of the collateral arts and sciences; the history of each is truly given, while present processes and recent inventions are succinctly described.

BRITISH MANUFACTURING INDUSTRIES.

THE MANUFACTURE OF ACIDS.

BY PROF. CHURCH, M.A., F.C.S., The Agricultural College,
Cirencester.

I. OIL OF VITRIOL, OR SULPHURIC ACID.

THE importance of this manufacture can hardly be exaggerated. Sulphuric acid is used in so many arts and processes, that its extensive production and employment in a country may be taken as a measure of the degree of civilization. Of the useful materials which are obtained by the aid of this acid I may mention, as well-known examples, soda, soap, chloride of lime, and glass. But in fact the employment of this acid is essential to the preparation of countless matters useful in metallurgy, in dyeing and calico-printing, in medicine, &c. To such uses of sulphuric acid I shall have repeated occasion to refer in the following pages.

Although the common process in use for the preparation of oil of vitriol (another name for sulphuric acid) has been carried on for upwards of a century, it is neither the original method of making this substance, nor is it one simple and easily understood. The