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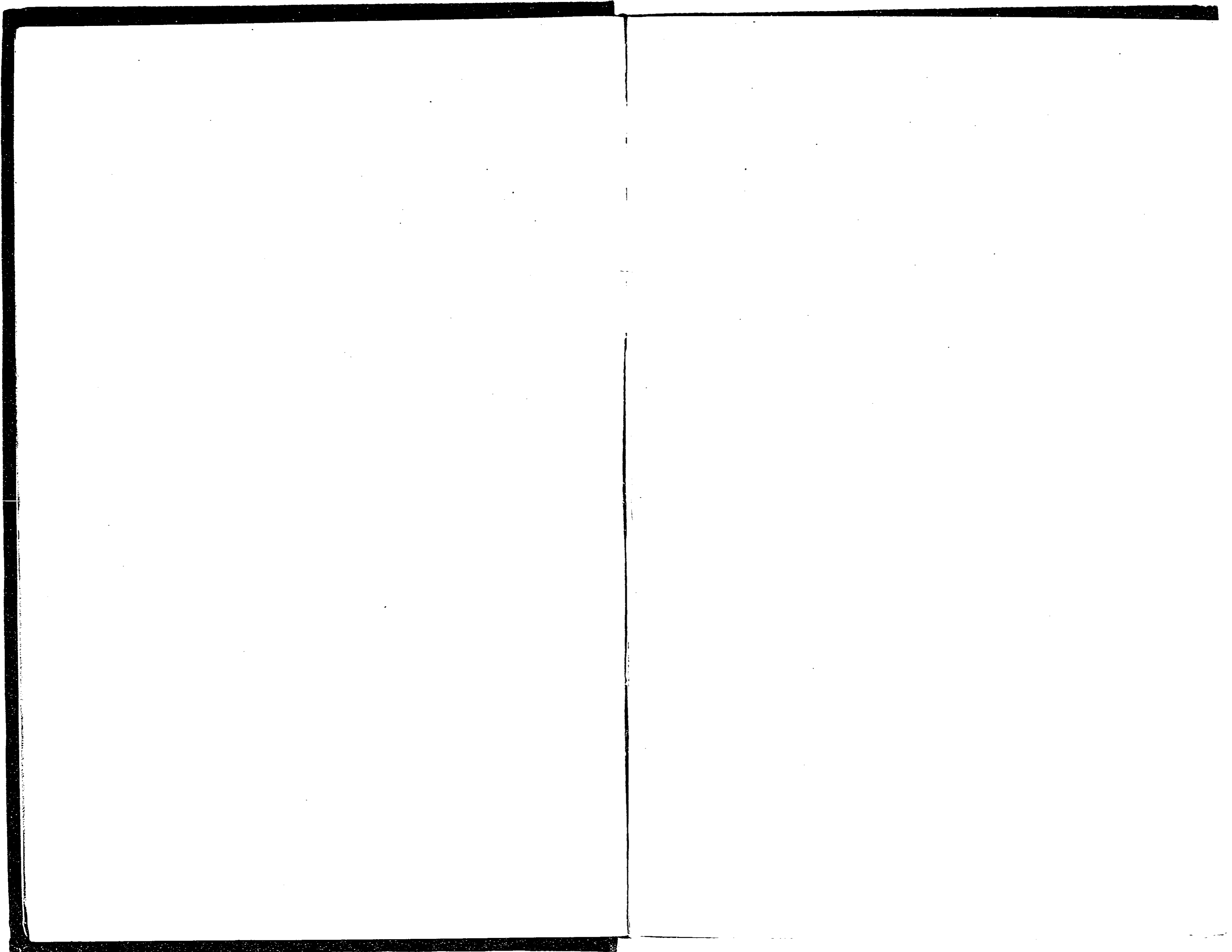
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SMOKE ABATEMENT.

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SMOKE ABATEMENT

A MANUAL
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MEDICAL OFFICERS OF HEALTH, ENGINEERS,
AND OTHERS.

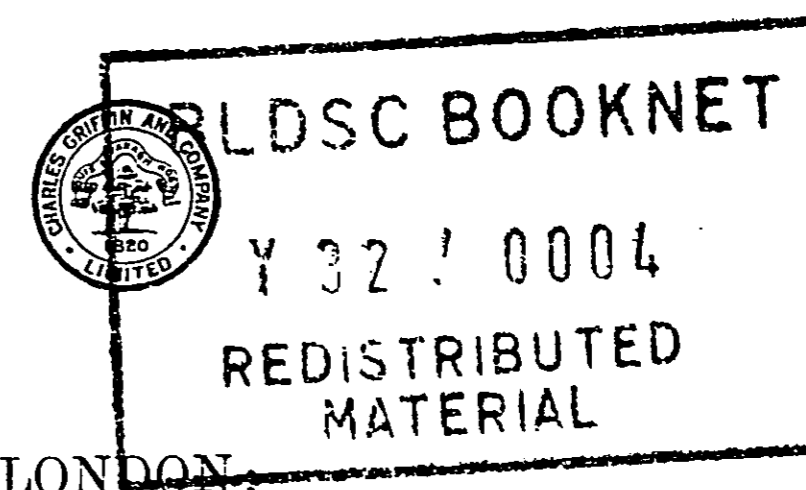
BY

WILLIAM NICHOLSON,

CHIEF SMOKE INSPECTOR TO THE SHEFFIELD CORPORATION.

SECOND EDITION, REVISED THROUGHOUT.

With 37 Illustrations.



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PREFACE TO SECOND EDITION.

THE first edition of this little book met the fate of most pioneer efforts which are in part propaganda, but from the technical standpoint it received warm welcome, not only from the Press, but from those Municipal Engineers and Public Health Inspectors who recognised the peril of the "smoke nuisance," and even from Members of Parliament who found time to consider it. Unfortunately, public opinion was unenlightened, and penalties for non-compliance with such laws as were then in force were quite inadequate, so there was little to be gained by issuing a second edition until a vigorous crusade had been conducted against what had become in fact a National evil. Consequently the author turned his attention to lecturing and addressing Public Authorities, as well as to writing Newspaper Articles on the subject of Smoke Abatement and Fuel Economy. He was commissioned by the Government to visit India, to thoroughly investigate the smoke nuisance in the great cities there, and during six months of experiment and demonstration he overcame the difficulties experienced. In 1914, Lord Curzon, speaking in the House of Lords on Lord Newton's "Smoke Abatement Bill," said:— "When I was Viceroy of India, I secured the services of the Sheffield Smoke Abatement Expert to deal with the smoke nuisance in Bengal, and he recommended

measures which had ended the smoke nuisance in Calcutta and Bombay."

The Departmental Committee on "Smoke and Noxious Vapours Abatement" invited evidence from the author of this book, and subsequently visited Sheffield to witness a practical demonstration and take additional evidence. Such time as the author could spare was further occupied in opening Conferences of National and International importance, and in lecturing before the British Medical Association, the Royal Sanitary Institute, the Sanitary Inspectors' Association, and numberless Technical and Engineering Colleges.

Slowly but surely the campaign developed, until the new Public Health (Smoke Abatement) Act, 1926, was passed with its greatly extended scope and heavy penalties. This determined the issue of this thoroughly revised second edition of a book which has already enjoyed a wide circulation. Practical throughout, and an outlook ever towards economy and national health, the author's earnest desire is that it may prove of value to all concerned in the complete overcoming of the smoke nuisance and its disastrous consequences.

W. N.

SHEFFIELD, *June*, 1927.

PREFACE TO FIRST EDITION.

IN preparing the present volume it has been the object of the author to give, as concisely as possible, an account of the smoke abatement movement, and to indicate the means by which the smoke nuisance may be combated, and, it is to be hoped, finally overcome.

The present age is essentially one of industrial growth and expansion; it is also one in which there may be detected the gradual awakening of a national conscience in regard to questions of hygiene and to all that concerns the well-being of the community. This being so, no excuse is needed for calling attention to the serious harm which results from the unrestricted emission of smoke, and it has been the aim of the author to show that, so far from its being a necessary evil, it is one that is easily remediable, and for the removal of which adequate legal machinery actually exists. The emission of smoke is unsound both economically and hygienically; economically, inasmuch as it involves a direct waste of valuable fuel, and hygienically, as it is a direct cause of lowered vitality in those compelled to breathe the vitiated atmosphere, and hence increases their susceptibility to infectious disease.

The legal aspects of the smoke nuisance have been made the subject of three chapters giving the various enactments which, from time to time, have been made

in our own and in other countries. The causes of smoke are next described, both from a theoretical and from a practical standpoint, and the remedy indicated. Succeeding chapters deal in detail with the various appliances now on the market for the dual purpose of smoke abatement and fuel economy, the leading types being illustrated and described. The author desires in this connection to express his indebtedness to the manufacturers who have kindly placed at his disposal valuable information, and supplied blocks as noted in the List of Illustrations.

In conclusion, the author hopes that this book may be the means of directing increased attention to a question which, although of urgent public importance, has hitherto been unaccountably—and culpably—neglected by many of those public authorities upon whom the duty of dealing with it devolves.

W. N.

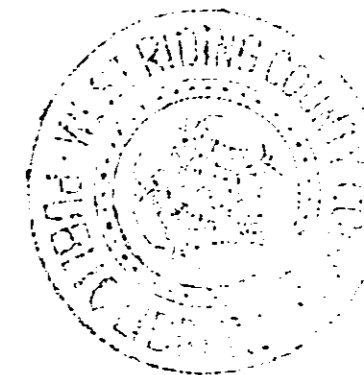
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SMOKE ABATEMENT.

CHAPTER I.

INTRODUCTION.

COAL was first used in London at the end of the thirteenth century by a few manufacturers only, but, owing to the high price of wood, its use soon became general. The smoke resulting from imperfect combustion was even then considered injurious to health, and in the time of Edward I., and again in Elizabeth's reign, proclamations were issued forbidding the use of coal in London when Parliament was sitting.

In 1648 Londoners petitioned Parliament to prohibit the importation of coal from Newcastle on account of the injury from smoke, and again in the reign of Charles II. Evelyn attacked the subject strongly in a pamphlet, pointing out the seriousness of the evil, and had a Bill prepared with the object of reducing the nuisance. The Bill did not become law, and nothing was done until the year 1819, when the nuisance from smoke became so menacing that Parliament appointed a committee to enquire how far furnaces could be constructed and worked to be less prejudicial to health and comfort. The committee reported that the evidence taken satisfied them that it was practicable to prevent smoke, and nothing resulted from the report.

In 1843 another select committee recommended the introduction of a Bill dealing with nuisances from furnaces, and according to the evidence it was hoped that

black smoke from fires, private dwelling-houses, and all other places, might eventually be entirely prevented. The matter was considered further in 1845, when another select committee reported "That, in the present state of knowledge, it is not desirable to extend the provision of an Act, beyond furnaces used for the generation of steam, but it cannot for a moment be questioned that the continued emission of smoke is an incomplete combustion of fuel, but it is not expected in the present state of knowledge that any law can be practically applied to fireplaces of common houses, which in a large town like London contribute very materially to the pollution of the atmosphere."

The practical results of the enquiries were the insertion of a section in the Railway Clauses Consolidation Act of 1845, requiring locomotive steam engines to be so constructed as to consume their own smoke, and a section in the Towns Improvement Act, 1847, requiring the furnaces used in factories to be constructed to consume the smoke arising from the fuel used.

The Metropolitan area was specially dealt with by Lord Palmerston's Acts of 1853 and 1856, which empowered the Police to enforce provisions against smoke from furnaces used in steam-raising, in factories, public baths, wash-houses, and furnaces used in working of steam vessels on the Thames. In addition, the Sanitary Act of 1866 empowered the sanitary authorities also to take action in cases of smoke nuisances, but the power was not exercised in London, and the police continued to enforce the Smoke Acts of 1853-56, until the passing of the Public Health (London) Act, 1891, which transferred the duty to the local sanitary authorities. While the Acts of 1853 and 1856 were in force, two events in the history of the subject occurred. In 1881, owing to the growing seriousness of the smoke nuisance in London, a movement was started by the Kyrle Society, and the National Health Society, resulting in the forma-

tion of an influential committee known as the Smoke Abatement Committee. Its object being to procure a reduction of smoke from all sources, especially from dwelling-houses. Several important public meetings were held, and finally an Exhibition was opened, at South Kensington, of improved firegrates and kitcheners. The other event was the introduction into the House of Lords, in 1887, of the Smoke Abatement (Metropolis) Bill. This Bill dealt with smoke nuisances from private houses and other premises not included in the Acts of 1853 to 1856, but it failed to become law. More recently many municipalities have taken interest in the question. In 1898 a memorial was addressed to the President of the Local Government Board pressing for the extension of the Alkali Act, so as to include the inspection, by Government Inspectors, of all factory chimneys. The memorial was prepared by the Leeds Smoke Abatement Society and signed by a large number of influential and distinguished persons representing industrial towns, trade councils, architectural, and medical societies, but no action was taken by the Government.

In March, 1909, a Smoke Abatement Exhibition was held in Sheffield under the auspices of the Sheffield Federated Health Association. A large number of local authorities were represented at the conference, held in connection with the exhibition, as a result of which it was decided to appoint a National Smoke Abatement Committee. The conference suggested, as the most practical and profitable solution of the question, the formation of a Smoke Abatement Department under the control of the Local Government Board, with expert inspectors to advise local authorities and manufacturers, and to enforce the smoke abatement law.

Also, the association invited the Local Government Board to send a representative to a meeting of manufacturers, representatives of local authorities, and voluntary associations to be held at Sheffield Town Hall

on September 14th, 1909, but the Board did not accept the invitation. The result of the further conference at Sheffield was the formation of a Smoke Abatement League for Great Britain, in February, 1910. The Committee of the Federated Health Association decided to form a branch of the Smoke Abatement League for Sheffield and the surrounding districts, and a branch was also formed in Glasgow and the West of Scotland, which is still carrying on classes for stokers and giving courses of lectures to the general public.

In April, 1910, Mr. A. G. C. Harvey, M.P., forwarded to the President of the Local Government Board a memorial, signed by local authorities and public associations, asking him to receive a deputation on the subject. The President received the deputation on 29th June, and after hearing their views expressed sympathy with the object, and promised to do what he could, also pointing out the difficulties in the way.

During the years immediately prior to the war there was activity in certain quarters regarding the general question of smoke nuisances, both on the part of local authorities and associations formed in connection with the problem. One of the most active of these associations was the "Coal Smoke Abatement Society," of Victoria Street, Westminster, whose very useful activities have, unfortunately, been restricted since the war, owing to lack of funds.

In March, 1912, an International Smoke Abatement Exhibition was held at the Agricultural Hall, Islington, under the auspices of the Coal Smoke Abatement Society, at which conferences were held daily, and there was appointed the committee for the investigation of atmospheric pollution.

In 1913 Mr. A. G. C. Harvey, M.P., introduced a "Smoke Abatement Bill" into the House of Commons, but the Bill did not proceed.

During the winter, 1913-14, the corporations of many

large boroughs forwarded to the Local Government Board resolutions passed by them expressing their belief in the necessity for further legislation for abating the nuisance caused by the emission of smoke from factory chimneys, and urging the Government to give further facilities for full discussion of the Smoke Abatement Bill introduced by Lord Newton in the House of Lords, or alternately to appoint a Royal Commission to consider the question of smoke abatement. Lord Newton introduced his "Smoke Abatement Bill" in the House of Lords in the 1914 Session. The Bill represented the views of many important local authorities, as well as those of the societies already alluded to, and to a considerable extent was based on the Bradford Corporation Act, 1910 (Section 53). The Bill was withdrawn when brought up for second reading (March 24th, 1914), upon the assurance that the President of the Local Government Board would appoint as early as possible a strong Departmental Committee, on which all interests concerned would be represented, to examine the present state of the law and its administration, and to make proposals for consideration before Parliament definitely committed itself to any further amendment of the law.

The committee was accordingly appointed by Sir (then Mr.) Herbert Samuel, President of the Local Government Board, with the late Mr. Russell Rea, M.P., as Chairman.

The work of the committee was suspended during the war, and when it was reconstituted by Dr. Addison, Minister of Health, in January, 1920, Lord Newton was appointed Chairman.