AIR AS FUEL; OR, PETROLEUM AND OTHER MINERAL IOLS UTILIZED BY CARBURETTING AIR AND RENDERING IT INFLAMMABLE

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OWEN C. D. ROSS

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BY

OWEN C. D. ROSS, M. INST. C.E.

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PREFACE.

About ten years since Mr. Jevons published the startling statement that the coal-fields of Great Britain would be probably exhausted, and the industrial supremacy of this country would consequently come to an end in rather more than a century from that date. This opinion was endorsed by Mr. John Stuart Mill, by whom the attention of the House of Commons and of the country was very seriously drawn to its grave significance.

Mr. Robert Hunt, the Keeper of Mining Records, founding his calculation on an average annual increase in the consumption of two-and-three-quarter millions of tons, had previously estimated that the entire quantity of available coal in these Islands down to a depth of four thousand feet, which he calculated to amount to about 80,000,000,000 tons, would be exhausted in two hundred and twelve years; but the average increase during the last ten years (1863 to 1872) has risen to no less than three-and-three-quarter millions of tons per annum, which tends to confirm Mr. Jevons' calculations; and Mr. Warington Smyth, writing in 1866, with all the authority of President of the Geological Society, besides several other eminent writers and public speakers before him and since, have expressed their concurrence with these disquieting vaticinations. Only the most sanguine have ventured to hope that the evil day may be deferred for two or three centuries.

Finally, in the second edition of his book, Mr. Jevons

supported his own belief in the non-existence of any other available fuel but coal, by quotations from a letter of Professor Tyndall's, in which he asserted very positively that he could see "no prospect of any substitute being found for coal as a source of motive power."

These views have taken deep root in the minds of many reflecting men, but it may be inferred from the statements contained in the following pages that there exists at least one widely diffused source of an important auxiliary fuel. Wishing to confine myself entirely to facts which can easily be verified, I have attempted no estimate of the amount of bituminous shales and clays, &c., which are in this country available for the production of oil, but that they do exist in sufficient quantities to assist materially in deferring the exhaustion of our coal-fields, if ever oil should be generally adopted for "carburetting air," there can be no reasonable doubt, and even the much despised oil-yielding Kimmeridge clay (of which a mass exists 700 feet in thickness throughout the greater part of the southern counties of England) may possibly play its part before "the evil day" arrives. Again, coal, it is true, will not bear much cost of freight or transport; but if one ton of mineral oil can be made to do the duty of four or five tons of coal, it will also bear four or five times as much expense of carriage; and British enterprise, which already seeks ores of iron and manganese, copper and pyrites in ever-increasing quantities on the shores of foreign countries, may some day find it also conducive to the industrial prosperity of England largely to increase the importation of foreign oils for use as fuel.

If we carry our memories back a few years, how long is it since it would have appeared incredible and most alarming

to have foretold that in the year 1873 the value of the importations from abroad of six such indispensable articles of food as corn, sugar, tea, coffee, butter, and cheese would exceed 102 millions sterling? Now, however, that the reality is before us, we regard it with totally different feelings. If, indeed, from the value of the Imports of 1873 that sum were struck off, it would reduce the total to £269,000,000, as against £311,000,000 of Exports, which figures, placed side by side, it must be admitted would show a very unsatisfactory, if not impossible, Balance of Trade; and they undoubtedly betoken the somewhat singular anomaly that the present prosperity of our foreign commerce, and consequently also of our native industry, is dependent in a great measure on the necessity of importing from foreign countries a large part of our chief articles of food.

The day will perhaps come when Englishmen will be accustomed to regard as equally advantageous a very large importation of "raw material" in the shape of foreign fuel, with which to balance the shipments and sale of the concurrently increasing and much more remunerative articles manufactured in the United Kingdom for foreign consumption.

It is, however, with the utmost diffidence that I venture to indicate the adoption of "Air as Fuel" as likely materially to affect so large a question.

O. C. D. R.

London, *Nov.* 13, 1874.

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