EXPERIMENTAL RESEARCHES ON THE FOOD OF ANIMALS, AND THE FATTENING OF CATTLE. WITH REMARKS ON THE FOOD OF MAN. BASED UPON EXPERIMENTS UNDERTAKEN BY ORDER OF THE BRITISH COVERNMENT

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ROBERT DUNDAS THOMSON

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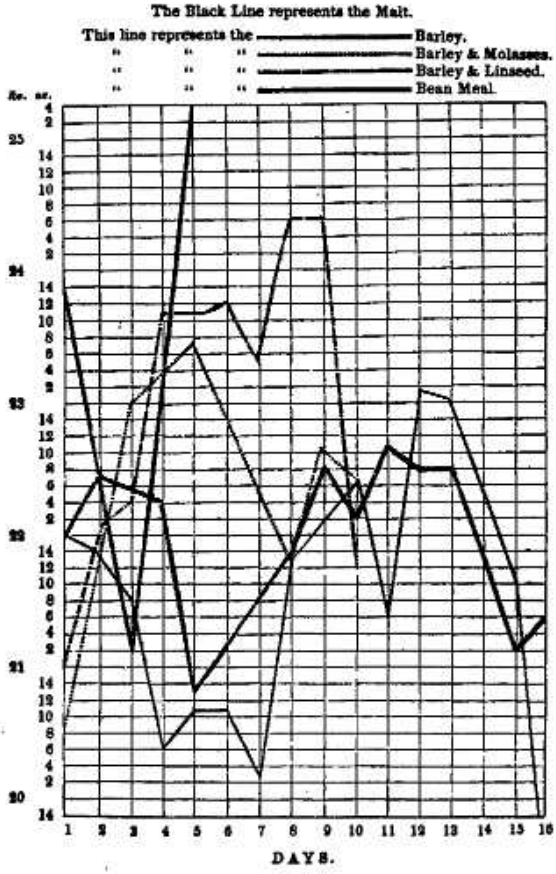
DIAGRAM

EXHIBITING IN POUNDS AND OUNCES THE AMOUNT OF MILK PRODUCED BY THE WHITE COW DAILY BY FIVE DIFFERENT KINDS OF FOOD.



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BASED UPON EXPERIMENTS UNDERTAKEN BY ORDER OF THE BRITISH GOVERNMENT.

BY

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TO

DR. THOMAS THOMSON

AND

BARON LIEBIG,

TO WHOM THE AUTHOR OWES HIS ACQUAINTANCE

WITH THE SCIENCE OF CHEMISTRY,

This Contribution

TOWARDS THE DEVELOPMENT OF THE SUBJECT OF THE

GROWTH OF ANIMALS

IS

AFFECTIONATELY INSCRIBED.

PREFACE.

The present Work is based on an extensive series of experiments which were made at the instance of the Government. The original object of that inquiry was to determine the relative influence of barley and malt in feeding cattle; but as the opportunity seemed a favorable one for investigating some scientific problems of great importance to physiology, and of extreme value in the physical management of man and animals, advantage was taken of it, by permission, to extend the experiments so as to include these objects.

It is well known to those who have been in the habit of late years of following the researches which have been undertaken to elucidate the nature of the growth of animals, that it is now generally agreed that the muscular part of animals is derived from the fibrinous or nitrogenous ingredients of the food, while the source of animal fat has been disputed. The present experiments seem to demonstrate that the fat of animals cannot be produced from the oil of the food, but must be evolved from the calorifient, or heat-forming portion of the aliment, essentially assisted by its nitrogenous materials. By following out this principle, the author has been enabled to detect an important relation subsisting between the nutritive and calorifient portion of the food, upon the determination of which, for the various conditions of animals, he considers the laws of animal dieting depend. He has endeavored

to apply this law to various articles of human food; and he trusts that the basis has been laid for future researches, which may be directed to administer to the health and comfort of mankind, and of domesticated animals. In conducting the experiments upon cattle, the author found not only his habitual acquaintance with animals, but also his medical knowledge in continual requisition in consequence of the tendency of the varied conditions of the animal system, from the sudden and frequent changes of diet, to induce symptoms of disease. These were carefully watched, and overcome by such precautions as clearly follow from a due consideration of the principles announced in this work. It was on this account, and to enable the agriculturist to appreciate the advantage which he would derive from physiological and chemical knowledge, rather than to give anatomical instruction to the professional man, that the introductory chapters were written. In a work professing to be the result of entirely original experiments, and where such a mass of figures exist, errors must unavoidably have been overlooked, even although great care has been taken to diminish their number. The author, however, trusts that none will be detected which can materially interfere with the principles deduced from the researches.