IDEAL CHEMISTRY, A LECTURE

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SIR B. C. BRODIE

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A Lecture.

BY

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PREFACE.

THE following Lecture was delivered before the Chemical Society on June 6, 1867, after the presentation to the Royal Society of my first Memoir on the Calculus of Chemical Operations. The Lecture, however, has not been published except in a report which appeared in the *Chemical News* of June 14, 1867. This report I have in the main followed. It is, however, far from presenting a satisfactory account of the Lecture; and indeed, in several important passages entirely fails to represent my meaning. I publish this Lecture now, partly that the views given in it may be correctly apprehended, and also that I think it will have a wider interest, and be more generally appreciated by those who are curious in these questions than at the time it was delivered, when the whole subject was new, and imperfectly understood. Also, although the Lecture is short, it touches upon two or three topics of fundamental importance, which I have not elsewhere discussed in the same way. Of these, there are three which I may especially indicate. Firstly, the application which I have made of the symbol xy regarded as a chemical symbol; secondly, the meaning to be assigned to the term "ideal element," and lastly, the suggestion which is here made, I believe for the first time (excepting in the few words at the conclusion of Part I. of the Memoir referred to above), of the possible decomposition, at the elevated temperature of the sun, of certain chemical elements, and of the existence in that luminary of their constituents in independent forms.

February 26, 1880.

IDEAL CHEMISTRY.

A Lecture delivered before the Chemical Society, on Thursday, June 6th, 1867.

MR. PRESIDENT,—I feel that I have undertaken this evening a truly difficult task, to give to the Chemical Society, in the brief space of one hour, an account of an abstruse and difficult subject, the exact comprehension of which requires that it should be minutely considered in all its details. I should not, however, shrink from this, if I did not feel that the subject is really before those even who are competent to judge of it, in a somewhat imperfect form; that I have as yet offered to the chemical world the first part only of the method of which I am about to speak; and that this method will be much better comprehended, both from a mathematical and chemical point of view, when you have before you the subsequent parts which I hope to present hereafter.

I am to speak of a method of representing the facts of chemistry, which is fundamentally different from the method at present in use. Let me say a few words upon the past history of chemical theories.

I believe theory to be essential to the existence of chemistry. The birth of the science was inaugurated by the construction of a definite theory of chemistry—the first theory which had ever been proposed, and which sought to give a definite and rational account of the facts of the science. This theory was the once world-famous doctrine of Phlogiston. In this theory the facts of chemistry were explained by the agency of a subtle, all-pervading, hypothetical principle, by the transference of which, from one chemical substance to another, it was assumed that the facts of chemistry were correctly accounted for. It is easy, from our present point of view, to pass critical remarks upon the doctrine of Phlogiston, but it is not quite so easy really to comprehend that doctrine and to put ourselves in the position of those great chemists who worked and who studied through its agency. If ever any one be tempted to speak slightingly of the doctrine of Phlogiston, let him remember that through the instrumentality of this doctrine the great discoverer of chlorine, the chemist Scheele, worked. Let him remember that the exact mind of Cavendish was contented with this doctrine. Let him remember again that the illustrious Priestley, that transcendentally inventive genius, in possession of this doctrine, made the great discovery of oxygen: and that not only was he then contented with this theory but that he died a firm believer in and adherent to it. However, the doctrine of Phlogiston, like many human surmises, was destined to pass away—Lavoisier shattered Phlogiston. For no inconsiderable period after this chemists appear to have worked, if I may so say, without a theory; that is to say, that, as during the long alchemical ages chemists were occupied in collecting together those facts which