RESPIRATORY PROTEIDS: RESEARCHES IN BIOLOGICAL CHEMISTRY

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Respiratory Proteids: Researches in Biological Chemistry by Arthur Bower Griffiths

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PREFACE.

"The elements of the living body have the chemical peculiarity of forming with each other most numerous combinations and very large molecules." PREYER.

THE mere accumulation of hard and dry facts is not by any means the sole, nor indeed the principal, work of scientific investigation. The facts may sometimes be turned to some useful account, though probably the majority never prove of any value whatever; but it is only when their relationship to each other is understood, and a system and harmony between them are perceived, that they become truly interesting. The alchemists got to know with a fair approach to accuracy the combining equivalents of the elements they worked with, and the knowledge thus acquired had a certain degree of utility; but it was only when Dalton wove all these facts into his famous theory

that their full philosophical significance was realised.

This is only another way of saying that the imagination is, after all, the most precious faculty with which a scientist can be equipped. It is a risky possession, it is true, for it leads him astray a hundred times for once that it conducts him to truth; but without it he has no chance at all of getting at the meaning of the facts he has learned or discovered.

The present work gives an account of recent researches in biological chemistry, and special details are given of the respiratory proteids (coloured and colourless) in the blood of animals. I am of the opinion that there are many proteids of a respiratory function in the blood of animals, and my own investigations (communicated to the *Académie des Sciences de Paris*) support that opinion.

It appears that the advance which we have already accomplished in chemico-biology, instead of narrowing actually expands the fields which remain for us to occupy. If Science means the interpretation of the universe, its

scope must widen with our comprehension of the almost infinite nature of its task.

The speculations which the present work may give rise to cannot but afford an interesting intellectual exercise to those who concern themselves with the philosophy of living matter.

In conclusion, the investigations detailed in the following pages have occupied a great deal of my attention for the past six years, and I have now the pleasure in presenting to students of science the following account of recent advances made in our favourite study—biological chemistry.

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RESPIRATORY PROTEIDS.

CHAPTER I.

INTRODUCTION.

THE blood of the invertebrata, like that of the vertebrata, is not homogeneous. It consists of a transparent or semi-transparent liquid, and a number of small, solid corpuscles, which float in it.

In the higher animals the corpuscles are of two kinds—red and colourless; but in the invertebrata there are, as a rule, only colourless corpuscles. The red blood of annelids is different from the red blood of vertebrates, inasmuch as the plasma is coloured and the corpuscles are colourless in the former,* while in the latter the plasma is colourless, and there are present coloured and colourless corpuscles.

* There are exceptions to this general statement.