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#### SCIENTIFIC BOOKS.

*Sir William Henry Flower, K.C.B., F.R.S., LL.D., D.C.L., Late Director of the Natural History Museum, and President of the Royal Zoological Society.* A Personal Memoir by CHARLES J. CORNISH, M.A., F.Z.S. London, Macmillan and Co., Limited; New York, The Macmillan Company. 1904.

In reading this memoir of Sir William Flower we feel that his was preeminently a life of action, and we are impressed with his achievements rather than with his character. Not that Mr. Cornish has neglected this part of his work; in fact, the author seems to think that some might consider the personal element too pronounced, but that Flower accomplished so much. Aside from his knowledge, the author has drawn freely upon Flower's letters and published papers, while the first two chapters, dealing with his younger days, are written by Mr. Victor Flower, and Lady Flower contributes a charmingly written chapter on the latter portion of his life.

Educated for a surgeon, Flower joined the army during the Crimean war, and we learn that he showed conspicuous bravery under fire, was assiduous in his care of the wounded—though delighting in 'operations'—and ever desirous of improving the efficiency of the service.

From the portraits and context we gather that he was a man of fine presence, dignified,

and courteous to all, and as he was of a sociable disposition, his friends were naturally many and included many of the most eminent men of the day.

Although successful as a surgeon, Flower's real work may be said to date from his appointment to the office of assistant surgeon at the Middlesex Hospital, which included the curatorship of the hospital museum. For, above all things, Flower was a 'museum man' in the widest acceptance of the phrase, and to him more than to any one else is due the educational character of modern museums. From his earliest youth he seems to have been destined for the position he subsequently held, and his crowning work at the British Museum was foreshadowed by 'the large, flat, shallow box' which he fitted with cardboard trays.

In December, 1861, he was appointed curator of the museum of the Royal College of Surgeons, a position he held for thirteen years, or until made director of the Natural History Museum, Flower being the first to bear that title, and here he remained until September 30, 1898, when he was forced to resign by failing health. Here it may be noted that the chapter dealing with his appointment is, in many ways, full of interest, as it contains many details relating to the growth and development of the British Museum which should be full of encouragement for museum officials on this side of the Atlantic. Those who know the British Museum only as it is, with its vast collections, magnificent and well-ordered exhibition halls and staff of efficient officers, may not know the long and difficult path by which these were attained nor realize that there was a time when the specimens were crowded and shabby and the staff decidedly underpaid. Flower may be said to have come in at the turn of the tide, when, after many years of struggle, a new building had been erected and the salaries of many of the officers substantially increased. Under his administration the collections steadily grew in number and importance, and while they all profited by his care, his immediate attention was given to the central hall whose exhibits form a comprehensive introduction to the study of systematic natural history. Here are to be found

specimens illustrating the subject of evolution, of adaptation to environment, protective coloration, natural variation and variation produced by man—as in domesticated animals—as well as series showing the characters and affinities of various groups of animals. In short, these collections form a museum in themselves, and it is along the educational lines laid down by Flower that modern museums are bound to progress. The old type of museum with its interminable and monotonous rows of scantily labeled specimens is, if not a thing of the past, a thing that is passing and the success or failure of the 'museum man' will be judged by the standard set by Flower.

Although devoting his energies mainly to museum work, he yet found time for original research and for a very considerable amount of literary labor, how much may best be gathered from the bibliography at the end of the volume. The 'Osteology of the Mammalia,' and 'Mammals, Living and Extinct,' the latter prepared with the collaboration of R. Lydekker and the outgrowth of articles in the 'Encyclopædia Britannica,' are his most comprehensive works and will always remain standard books of reference.

A man of high scientific attainments, the friend of Huxley, Darwin and Hooker, his greatest work was undoubtedly the impetus he gave the progress of science by making it not merely intelligible, but deeply interesting to the average observer from whom must ultimately come the support of scientific research.

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#### DISCUSSION AND CORRESPONDENCE.

##### ANIMAL HEAT AND FEVER.

TO THE EDITOR OF SCIENCE: I have recently been engaged in a clinical study of fever, and as I am out of reach of any adequate reference library, I thought you would kindly permit me the use of your columns for a request for information as to the latest work which has been done on the problems of animal heat and fever.

The data which I have been able to collect appear to have established fairly clearly that

fever is accompanied, not merely by diminished loss of heat (thermolysis), but also by increased production of heat (thermogenesis), *without increase of oxidation*.

The points upon which I should like information are:

1. Is animal heat, or body-temperature, to be regarded as a vital necessity, or merely an accompaniment of the really vital, metabolic changes? The perfection of constructive and growth processes not merely in cold-blooded animals, but particularly in plants, would appear to afford ground for this belief.

2. Have we any grounds for regarding the particular body-temperature of a given species of animal as roughly an index of the friction of the body-engine, and body heat as energy wasted?

3. Are the processes which control the temperature chiefly concerned with the dissipation of heat before it can have accumulated sufficiently to become injurious to the organism?

4. Are we justified in believing that the energy which enters into the normal activities of the body, secretion, motion, growth, is more nearly electrical than thermic in character?

5. Has the work done three or four years ago by Robin and Henrijean, showing that oxidation is not increased in fever (as measured by the oxygen intake and the carbon dioxid output), but on the contrary diminished, been supported by later research?

6. If this be true, are we justified in regarding fever as, to put it very crudely, an increase of friction in the vital machine, with consequent dissipation of heat, due to the disturbing influence of toxins, whether introduced from without or formed within the body?

The recent researches of Roger, Sanarelli and Metchnikoff show clearly that the natural effect of the toxin is to depress the temperature, and if the dose be large enough, or the resisting power of the animal sufficiently lowered, that depression will continue until death results in chill (hypothermia), without the occurrence of any reaction, or rise of temperature at all.

7. Would it not appear as if the increased temperature of fever was due to the sudden diversion by the toxin of all the energy which