A LECTURE ON THE WINDS, OCEAN CURRENTS, AND TIDES

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A Lecture on the winds, ocean Currents, and Tides by William Leighton Jordan

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WILLIAM LEIGHTON JORDAN

A LECTURE ON THE WINDS, OCEAN CURRENTS, AND TIDES

Trieste

A LECTURE

ON THE

WINDS, OCEAN CURRENTS, AND TIDES

AND

WHAT THEY TELL OF THE SYSTEM OF THE WORLD.

DELIVERED AT WILLIS'S ROOMS, KING STREET, ST JAMES'S

ON SATURDAY EVENING, NOV. 3, 1877

BY

WILLIAM LEIGHTON JORDAN, ESQ., F.R.G.S.

SECOND EDITION

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THE Lecture reported in the following pages will be continued at 8 o'clock on the evening of Thursday, the 20th December, at Willis's Rooms.

Seats 5*s*., 2*s*. 6*d*., and 1*s*.

For Tickets apply by letter to W. Leighton Jordan, Esq., the Scientific Club, 7 Savile Row, W.; or at Mr. Mitchell's Royal Library, No. 33 Old Bond Street, W.

PREFACE.

DEDICATED BY PERMISSION

TO

DR. WILLIAM HENRY HADEN-HADEN,

M.A., M.D., D.C.L., ETC.

A FRIEND has, since the issue of this second edition, suggested to me the expediency of striking out from the following pages the remarks I made on the 3rd of November regarding the circulation of the blood, on the supposition that to some it will form a stumbling block in the way of accepting the more practical portion of the views I have expressed, whilst to others it may form a convenient handle for purposes of hostile criticism.

In view of this, I desire to emphasise what I stated on the 3rd November, to the effect that those remarks did not form an intrinsic part of the Lecture, and that I do not pretend in the following pages to have brought any argument to bear on that subject. In fact, when I rose to deliver the Lecture I had not the slightest intention of saying anything whatever on the subject. Having, however, said thus much, I am also bound to state that the opinion expressed is not one hastily or lightly formed. It is not based on

directly inductive reasoning, but on *à priori* knowledge of the fact that the newly discovered action of gravitation must be in play affecting the living system, even if it were quite impossible for us to form any conception of the manner in which its action might produce effects. This latter is, however, far from being the case.

In the formation of a drop of water on a pane of glass, or on a blade of grass, we see one half of the requisite action. There the gravitation of the particles of moisture to each other causes them to rush together and so to form one large drop; and if we imagine this drop to be formed in an elastic covering, then, as fast as this covering is expanded by the inrush of the fluid particles, its resisting or contractile effort must tend to drive back the fluid; then, if there be channels connected with that elastic covering provided with valves, which in some of the channels, as in the veins, allow the fluid to pass into the elastic receptacle and not to flow back, then the contractile effort must drive the fluid out through those channels which, like the arteries, are not thus provided with valves to prevent such an exit, as fast as the tendency of the particles to gravitate together into one mass expands the elastic receptacle.

The remarks I made are not, however, based on any ideas of this sort, but on what I consider the discovery of the fact that gravitation is an act of *vis inertiæ*, and is the primary force which emanates universally from matter, and is in constant process of transmutation into other forces, all of which must of necessity be traced to it, or else be in direct conflict with it; so that every physical phenomenon is directly or indirectly connected with it. This forms an *à priori* reason for asserting that

gravitation is in action on the circulation of the blood, even if it were impossible to imagine how it can act.

Vis inertiæ, which, by the action of gravitation, is constantly drawing the blood to the heart, is in incessant conflict with the vital force, whose contractile power as incessantly drives the blood out through the arteries. When the vital power is exhausted, then at length *vis inertiæ* is no longer resisted, and its last action of gravitation, which draws the contents of the veins into the heart, retains the blood there in the absence of sufficient vital force to resist this aggregation of the fluid particles caused by the direct action of gravitation. The arteries are empty when the force of gravitation which draws the blood to the heart is no longer exceeded by the vital force which drives the blood from the heart through the arteries. The fact that in cases of starvation or hæmorrhage the heart is empty and contracted tends to confirm the foregoing view, because, in the one case the last drop of blood has been absorbed by the system, and in the other case it has been removed ; so that in each case there is none left free to gravitate towards the heart.

INTRODUCTION.

THE following advertisement appeared in several of the London daily and weekly papers at intervals preceding the Lecture :—

'A Lecture on "The Winds, Ocean Currents, and Tides, and what they tell of the System of the World," will be delivered at Willis's Rooms, King Street, St. James's, on Saturday evening, November 3rd, 1877, by William Leighton Jordan, Esq., F.R.G.S., author of

"The Elements: an Investigation of the Forces which determine the Position and Movements of the Ocean and Atmosphere" (1866);

"Vis-inertiæ: a Treatise on the action of Vis-inertiæ in the Ocean" (1868);

"The Ocean: its Tides and Currents, and their Causes" (1873);

"Remarks on the recent Oceanic Explorations" (1877);