

**A SCIENCE PRIMER.  
ON THE NATURE OF  
THINGS**

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A Science Primer. On the Nature of Things by John G. MacVicar

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ON THE NATURE OF THINGS

BY THE SAME AUTHOR.

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**A Science Primer**

**ON THE NATURE OF THINGS**

BY

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WITH ILLUSTRATIONS



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## P R E F A C E.

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THE primers, class-books, and text-books on all branches of science now publishing are, I think, calculated to do a great deal of good. They show how compendiously the most part of what is ascertained to be real and important in science may be intelligibly stated, and how interesting to minds of general culture an acquaintance with nature is when the statement of it is freed from the laboured scaffolding which usually surrounds it, and is deemed necessary to support it, in systematic treatises.

It may, indeed, be alleged that these primers present to their readers merely a smattering of science. But may it not with truth be replied, in similar terms, that the actual science of the day, in all its details, when viewed in reference to a satisfactory view of nature and its economy, is itself merely a smattering?

The following pages, which, to perpetuate a



title very general among the short treatises of the philosophers of ancient India and Greece, and familiar to us in Latin, I have named

“DE REERUM NATURA,”

are presented to the reader (who is not preoccupied and satisfied with science commonly so called) as appearing to their author much better calculated to satisfy that legitimate curiosity which the observation of nature and patient thought about it tend to awaken; and that for the following among other reasons:—

I. When in the progress of the development the field of physics and chemistry is reached, without the aid of the balance the specific gravities of masses and the atomic weights of their elements, their atomicities and chemical affinities, their abundance or rarity in nature, and their natural affinities have been deduced as functions of the form and structure of the least parts of matter; and the results thus obtained being thereafter compared with those of observation and experiment, such agreements present themselves on all hands as to constitute a striking verification of the theory advanced in its principal features, and in that branch of the subject—namely, the physical—which alone admits of a palpable verification; for what is advanced as to spirit and the world of spirits can commend itself to scientific acceptance only by its verisimilitude or general harmony with thought and things.

II. The train of thought is a cyclical development which, while it possesses continuity from first to last, is based upon a homogeneous unity into which it returns, with perfect conservation of energy and attribute; so that the popular view of things which looks only to a development all in one direction, issuing, in the opinion of some, in its own abolition and ruin, gives place here to a self-restoring, seed-producing system, homologous on the great scale with what we see in the small scale, and to what we should expect where immensity and eternity supply the field of existence and action, and the ever-living God is the Author of the economy.

III. Most of the views here advocated have been advanced in previous epochs of philosophy and science, but that only in broken and unconnected portions giving no mutual support, while here they are given in connection, falling into their places as parts of one systemic whole. And though the unhistorical and uncritical way in which they are here presented may seem disrespectful to modern science, and even revolutionary in some of its branches, yet on the part of an author whose home is far from all libraries, this was unavoidable; and if it be found on an adequate study of them that the changes proposed are all in the interests of objective simplicity, distinctness of conception, and facility of acquisition, with an ample responsiveness of nature, these literary faults may well be condoned.

IV. The author has extended the application of a law already familiarly known, but referred to in biology only, so as to be all-embracing and cosmical, and, indeed, as alone needed for the explanation of phenomena. And if he has succeeded, surely some such consummation is most devoutly to be wished. If it be said that he tends to make the science of mechanics coextensive with material nature, and to supersede chemistry except as an art; that he aims at presenting atoms and molecules, and ultimately tissues, as structures distinctly visible in the mind's eye, their modes of action, affinities, atomicities, and other affections being clearly explicable on well-known statical and dynamical principles, and their analysis and synthesis a sort of clearly-seen mental fingering,—surely this is a state of science against which the only thing that can be said is that it is not possible to be accomplished—an objection which only reminds one of the remark which Bacon somewhere makes, that he is a bad mariner who concludes that, when all around is sea to him, there is no land beyond.