

**THE WORLD A
WORKSHOP; OR, THE
PHYSICAL RELATIONSHIP
OF MAN TO THE EARTH**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649736881

The World a Workshop; Or, The Physical Relationship of Man to the Earth by Thomas Ewbank

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THOMAS EW BANK

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W. J. E. 1855

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BY THOMAS EW BANK,

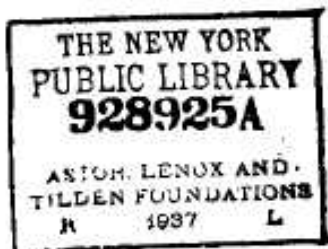
AUTHOR OF "HYDRAULICS AND MECHANICS."

NEW YORK:

D. APPLETON AND COMPANY,

346 AND 348 BROADWAY.

1855.



Entered according to Act of Congress, in the year 1934,

BY THOMAS EWBANK,

In the Clerk's office of the District Court of the United States for the Southern
District of New York.

TO

WORKING MEN,

THIS LITTLE VOLUME IS INSCRIBED,

AS A

Testimony of Respect

TO THE

DIGNITY AND OMNIPOTENCE

OF

ENLIGHTENED LABOR.

RECEIVED FROM C. G.

MAY 21 1937

P R E F A C E .

I AM not aware of a single sentiment in the following pages to which the most devout mind can justly except, nor of a thought that is not in harmony with the deepest tone of admiration for the works of God, and with the purest feelings of love and reverence for Him; yet so it is, that kindred subjects are seldom brought forward without awakening opposition in persons who imagine the Ark of Truth endangered by the enunciation of speculations and deductions in science not included in their creeds, and who, on such occasions, eagerly put forth their hands to uphold it—as if it could be shaken or overthrown by error.

Truth, or rather the knowledge of it, is progressive. In nature there can be no end to its disclosures, for nothing is concealed. Upon every object, from an insect to a world, is written the purpose for which it is made. We may not always read aright, and no wonder, since we live in the infancy of systematic inquiry, and therefore cannot anticipate the results of its maturity; but our errors will be corrected by our successors, and theirs by those who succeed them.

That this mundane habitation was designed and literally fitted up for the cultivation and application of chemical and mechanical science as the basis of human development, will, I think, appear evident even from the imperfect examination here given it; and that it is essentially the same with other worlds, according to the condition of matter in them, and the physical constitution of their inhabitants, is all but an inevitable conclusion. To those who deny them to be centres of reasoning and active populations it is useless to reply till they can show for what other purposes they were made, and how this little earth, a mere atom among them, became so

strange an exception. If we had had no knowledge of the existence of other orbs, it would have been unphilosophical to insist there were none besides our own; but now that we know they crowd every region of space, it would be positive folly to contend that all are barren of life and intelligence, of science and arts, except the one given to us.

It is preposterous to suppose the Divine Builder erects tenements for the purpose of keeping them empty. If they are not occupied, it is because they are not yet prepared to be so. It may be assumed that as soon as an orb is fitted for tenants they are put in possession of it; and then it is that another marvel is disclosed. Material natures require something to *do* as well as to reflect on; this is indispensable to their being—the purpose of it. *Employment* is, therefore, an element of existence, and hence, *The industrial activities of the denizens of the universe*; involving, as they must, infinities of modes and processes, and multiplied infinities of applications and results. The means by which this diversity is brought out might, on a first thought, be deemed inscrutable and incomprehensible, yet, like the effects of gravitation or of any universal law, it is very simply evolved. It depends on the diverse conditions of matter and the circumstances under which it exists, and as these cannot possibly be the same in any two worlds, much less in any two systems, neither can the occupations of those employed on it. These are, therefore, endless in numbers, because endless are the truths of which matter is the vehicle, and the applications of which it is capable.

Let those who do not sympathize with the idea that occupants of worlds around us act on matter as we do in this one (which, it should be remembered, is an integral member and sample of them), look abroad, and see how the same general laws to which it is subject govern others; how some in its vicinity resemble it in volume, density, duration of days and nights, &c.; how the red soil, green seas, and northern snows and ice of Mars approximate to it in these particulars; how larger, more distant, and more resplendent ones, belonging to the same group, are illuminated every night, each with several moons; and how in aerolites we have metals and metallic alloys belonging to celestial regions—and then ask themselves if there is anything unreasonable or unlikely, or if it is not in the

highest degree probable and presumable, that people there add to their enjoyments and multiply their conveniences, by employing the materials and agencies placed at their disposal—in other words, that occupations akin to some of ours are followed in the other spheres.

Creation is not a medley of mingled purposes and disconnected things. The unity of design manifested in it is the theme of every philosopher, and not less observable and admirable is the fine chain of relationship that binds all the diverse forms and conditions of matter in one coherent whole. There are no violent transitions from series to series, but by almost imperceptible degrees differences open into species, species into genera, and genera into wider classes. And as with the contents of worlds so with worlds themselves; for they are merely larger divisions, and not the largest, since they merge into groups or systems, and systems, in all probability, into still more and more comprehensive departments. They are as intimately related to one another as are minerals, animals, or plants; and though we are not permitted to observe the alliance in their internal details, it is proclaimed externally to the utmost bounds of the heavens. There are no abrupt chasms in their outlines, dimensions, illumination, or movements, and by the strongest of analogies there can be none in their internal administrations.

In the latter respect the chain can be no more ruptured than in the former. The absence of the smallest link would break the continuity of the whole, and introduce disorder. On a matter so momentous, so overpowering in magnitude, as the interior economy of worlds, it would seem impossible that our orb should be the only one on which practical science is cultivated. There cannot be so wide a gap. There must be others more or less closely allied to it in this as in other respects; some in which the arts are prosecuted with higher and some with lower results. No truth is more patent than the unity of creation. There is nothing *sui generis* in it; nothing that stands solitary or alone—nothing that is not connected with and dependent on something else—not a boulder, a planet, or a sun, not an animal or the habits of one—not an order of intelligences or an occupation of intelligence.

Besides the varied and ever varying phases of matter, there is

another law which still further affects occupations. It is that which is manifested in the diversity of mental organisations—in the genius, tastes, subtlety, and power of the elaborators. No two minds of like construction and calibre are found on earth; nor, from a common principle pervading creation, can be found anywhere. A general resemblance or type may prevail in single orbs, and even extend with modifications over a group, but the probabilities are that the differences as respects worlds and systems are quite as marked as we find them in individuals and races. "On a planet more magnificent than ours, may there not be a type of reason of which the intellect of Newton is the lowest degree? May there not be a telescope more penetrating and a microscope more powerful than ours; processes of induction more subtle—and of analysis more searching—and of combination more profound? May not the problem of three bodies be solved there—the enigma of the luminiferous ether unriddled—and the transcendentalisms of mind embalmed in the definitions, and axioms, and theorems of geometry? Chemistry may there have new elements, new gases, new acids, new alkalies, new earths, and new metals; geology new rocks, new classes of cataclysms, new periods of change; and zoology, mineralogy, and botany new orders and species, new forms of life, and new types of organization, all demanding higher powers of reason, and leading to a warmer appreciation, and a higher knowledge of the ways and works of God. But whatever be the intellectual occupations of the inhabitants of the planets, who can doubt that their object is to study and develop the material laws which are in operation around them, above them, beneath them, and beyond them in the skies!"*

But it is objected that physical industry and ingenuity are of too low and ephemeral a nature to enter into the sublime and everlasting plans of the Author of the Universe; that cultivation of *mind* must be the object of calling it into existence. True; but as matter is the agent on which God has printed his thoughts, may it not be the book which all minds are to read and to learn from? We know that he *has* made the elevation of human nature to depend on the study and application of principles impressed upon matter, and

* North British Review, May, 1854.