TOWN GEOLOGY: THE LESSON OF THE PHILADELPHIA ROCKS. STUDIES OF NATURE ALONG THE HIGHWAYS AND AMONG THE BYWAYS OF A METROPOLITAN TOWN

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649029556

Town Geology: The Lesson of the Philadelphia Rocks. Studies of Nature Along the Highways and Among the Byways of a Metropolitan Town by Angelo Heilprin

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

www.triestepublishing.com

ANGELO HEILPRIN

TOWN GEOLOGY: THE LESSON OF THE PHILADELPHIA ROCKS. STUDIES OF NATURE ALONG THE HIGHWAYS AND AMONG THE BYWAYS OF A METROPOLITAN TOWN

Trieste

TOWN GEOLOGY:

THE LESSON OF THE PHILADELPHIA ROCKS.

STUDIES OF NATURE ALONG THE HIGHWAYS AND AMONG
THE BYWAYS OF A METROPOLITAN TOWN.

BY

ANGELO HEILPRIN,

Professor of Invertebrate Paleontology at, and Curator-in-Charge of, the
Academy of Natural Sciences of Philadelphia.
Author of "Contributions to the Tertiary Geology and Paleontology of the United States."

PHILADELPHIA:
PUBLISHED BY THE AUTHOR.
ACADEMY OF NATURAL SCIENCES.
1885.

IN presenting the following pages to the public the author lays no claim to having materially contributed to our existing knowledge of the geology of Philadelphia. His aim has been merely to so interpret many of nature's teachings as to render them readily comprehensible to the average mind, and to awaken that spirit for investigation which cannot but prove both pleasurable and profitable, and which, unfortunately, only too frequently remains dormant for want of proper cultivation. With this object in view he has omitted superfluous details, and the discussion of questions which are in the main still of a controversial character.

The observations recorded are almost exclusively such as have fallen to the personal notice of the author, although for many of the data bearing upon the history of the gravels and clays he is indebted to the writings of PROF. H. C. LEWIS, who has made a special study of the formation. The geological sketch map of the State of Pennsylvania is based upon a similar map prepared to illustrate an article by PROF. J. P. LESLEY for the "Encyclopædia Britannica."

A. H.

Philadelphia, May 15th, 1885.

CONTENTS.

I.

WORK, IN THE FIELD AND BY THE SEA; OR THE NATURE OF GEOLOGICAL INVESTIGATION.

Examine the open country after a rain; you will find the small streams that may be coursing over the meadow or down the hill-side turbid, the water no longer retaining its wonted transparency and purity. A certain quantity of earth or sand has been washed into it from the surrounding soil, and is that which gives the muddy aspect to the stream. Some of this impurity has been directly forced out by the impact of the falling drops upon the surface, while much of the remainder has been washed out by the running stream itself. Walk over a garden gravel patch after a shower, and you will note your feet sinking gently into the stony mass, as a grating murmur is thrown out by the gravel particles rubbing against each other. Here, the finer stone particles—the sand and earth—have been washed out from between the larger ones, and, consequently, the whole mass has been rendered "softer" and less resisting; that is, more latitude has been given to the pebbles to move about, or to be forced about. But manifestly, the

sand particles that may lie immediately beneath the individual gravel pebbles will be in a measure protected by them from the direct pluvial downpouring, and will, consequently, for a shorter or longer period retain their normal positions; whereas, the particles not so protected will at once yield to the attack of the battering rain-drops, and be removed by them to some other locality. It follows from this that little gravel-capped eminences will alternate with as many shallow depressions or pits, but unless your eye is well accustomed to minute details you will only notice a general looseness in the disposition of the gravel, or an unusual sharpness in outline, due to the washing away of a considerable part of the covering material. Follow the gravel walk up to where it passes under the projecting eaves of the house, and if you are sufficiently fortunate to find a pretty steady drip from the leaky waste-pipe above, you will experience no difficulty in distinguishing the little columns of sand and earth, each one capped with its tiny protecting gravel.

Conceive now that instead of gravel you are dealing with large blocks of stone or boulders, which may lie scattered about on the surface, or some distance beneath the surface, of the earth; and further, that the length of time during which the destroying agent, water, has been operating has been prolonged from a possible few minutes or hours to a period of years, or even centuries—what may be the result? Simply, that instead of having tiny sand columns capped by gravel pebbles, we may now have massive columns of earth topped by a series of rock capitals. Such is the origin of the famous earthen pillars of Botzen, Tyrol, where in hundreds they rise to heights of 20 to 100, or more, feet; and likewise, the similar structures that have been discovered in our