REPORT ON THE PETRIFIED FORESTS OF ARIZONA

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649226566

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Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

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LESTER F. WARD

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Trieste

DEPARTMENT OF THE INTERIOR.

REPORT

ON THE

PETRIFIED FORESTS OF ARIZONA.

BY

LESTER F. WARD,
PALEONTOLOGIST, U. S. GEOLOGICAL SURVEY.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1900.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
Washington, D. C., December 14, 1899.

SIR: I have the honor to transmit herewith a report by Prof. Lester F. Ward on the Petrified Forests of Arizona.

The request for the investigation and report came, at the instance of the Secretary of the Smithsonian Institution, from the Hon. Binger Hermann, Commissioner of the General Land Office. In order that the origin of the report may be fully understood by the Department, Professor Ward has included a copy of the correspondence leading to it.

Yours, respectfully,

CHAS. D. WALCOTT, *Director.*

The SECRETARY OF THE INTERIOR.

REPORT ON THE PETRIFIED FORESTS OF ARIZONA.

By Lester F. Ward.

December 12, 1899.

Sir: In compliance with your instructions dated October 9, 1899, directing me "to visit what is known as the 'Petrified Forests of Arizona,' and, upon your arrival in Washington, render a detailed report of your investigations and observations concerning the same, including such information as may be of value touching the proposition to set aside the region embracing the Petrified Forests as a national park," I have the honor to make the following report:

In order to place the subject in as clear a light as possible, I will first give a brief historical account of the recent movement in favor of making a public reservation of the region embracing the Petrified Forests of Arizona.

In 1895 the legislative assembly of the Territory of Arizona adopted the following memorial to Congress:

HOUSE MEMORIAL No. 4.

To the Senate and House of Representatives of the United States of America in Congress assembled:

We, your memorialists, the eighteenth legislative assembly of Arizona, beg leave to represent to your honorable bodies:

First. That there is in the northern part of this Territory, lying within the borders of Apache County, near the town of Holbrook, a wonderful deposit of petrified wood commonly called the "Petrified Forest" or "Chalcedony Park."

This deposit or forest is unequaled for its extent, the size of the trees, and the beauty and great variety of coloring found in the logs.

The country 10 miles square is covered by the trunks of trees, some of which measure over 200 feet in length and from 7 to 10 feet in diameter.

Ruthless curiosity seekers are destroying these huge trees and logs by blasting them in pieces in search of crystals, which are found in the center of many of them, while carloads of the limbs and smaller pieces are being shipped away to be ground up for various purposes.

Second. Believing that this wonderful deposit should be kept inviolate, that future generations may enjoy its beauties and study one of the most curious and interesting effects of nature's forces,

We, your memorialists, most respectfully request that the Commissioner of the General Land Office be directed to withdraw from entry all public lands covered by this forest until a commission or officer appointed by your honorable bodies may investigate and report to you upon the advisability of taking this forest under the charge of the General Government and making a national park or reservation of it.

It is annually visited now by hundreds of scientific men and travelers from every State and country, and some such action by your bodies would preserve it from the vandalism it is now subjected to.

We would further state that at present there is no person living within the limits of the proposed park, so that no settlers will be disturbed by any such action on your part.

And be it resolved by the legislative assembly of the Territory of Arizona, That our Delegate in Congress be, and is hereby, instructed to use all honorable means to have some action taken by Congress to have this Chalcedony Park set aside and formed into a national park under the care and charge of the General Government.

Also that the secretary of the Territory be, and is hereby, requested to transmit a copy of this memorial to each House of Congress, our Delegate to Congress, and the United States Land Commissioner.

J. H. CARPENTER, *Speaker.*
A. J. DORAN, *President.*

[Indorsed.]

I hereby certify that the within memorial originated in the House and is known as House Memorial No. 4.

CHAS. D. REPPY, *Chief Clerk.*

Filed in the office of the secretary of the Territory of Arizona this 11th day of February, A. D. 1895, at 11 a. m.

CHAS. M. BRUCE, *Secretary of Arizona,*
By F. B. DEVEREUX, *Assistant.*

In June last the secretary of the Smithsonian Institution received the following letter from the honorable Commissioner of the General Land Office:

PETRIFIED FOREST, ARIZONA.

DEPARTMENT OF THE INTERIOR, GENERAL LAND OFFICE,
Washington, D. C., June 17, 1899.

SIR: I am in receipt of a certified copy of a memorial by the legislature of Arizona praying that certain lands in Apache County, Arizona, in the vicinity of the town of Holbrook, known as the "Petrified Forest," be withdrawn from entry with a view to creating a reservation or national park for the purpose of preserving the natural wonders and curiosities of the same.

I have the honor to request that you will kindly inform me whether the records of the Smithsonian Institution furnish any information respecting this locality indicating that the scenic features of the same are of such a nature as to render it desirable, in the interest of the public, to set these lands apart as a national park. I will be pleased to receive a full expression of your views on this subject, and also as to the importance of preserving the mineralized formations in that region.

Very respectfully,

BINGER HERMANN,
Commissioner.

The SECRETARY OF THE SMITHSONIAN INSTITUTION.

To this letter the following reply was made:

SMITHSONIAN INSTITUTION,
Washington, D. C., July 7, 1899.

SIR: I have the honor to acknowledge the receipt of your communication of the 17th ultimo requesting information concerning the Petrified Forest near Holbrook, in Arizona, as well as an expression of opinion concerning the desirability of setting aside these lands as a national park, and beg to furnish the following statement:

The region near Holbrook, Apache County, Arizona, known as the "Petrified Forest," "Chalcedony Park," and "Lithodendron (stone trees) Valley," is of great interest because of the abundance of its beautiful petrified coniferous trees, as well as of its scenic features. The trees lie scattered about in great profusion, but none stand erect in their original place of growth as do many in the Yellowstone National Park. The National Museum possesses three splendid trunks collected there by Lieutenant Hegewald at the request of General Sherman.

The best popular account of this region is given by Mr. George F. Kunz, and is as follows:

"Among the great American wonders is the silicified forest, known as Chalcedony Park, situated about 8 miles south of Carrizo, a station on the Atlantic and Pacific Railroad, in Apache County, Arizona. * * * The locality was noticed in 1853 by the Pacific Railroad Exploring Survey. * * * There is every evidence to show that the trees grew beside some inland sea. After falling they became water-logged, and during decomposition the cell structure of the wood was entirely replaced by silica from sandstone in the walls surrounding this great inland sea.

"Over the entire area, trees lie scattered in all conceivable positions and in fragments of all sizes, the broken sections sometimes resembling a pile of cart wheels. * * * A phenomenon perhaps unparalled and the most remarkable feature of the park is a natural bridge formed by a tree of agatized wood spanning a canyon 45 feet in width. In addition to the span, fully 50 feet of the tree rests on one side, making it visible for a length over 100 feet."

Lieutenant Hegewald writes:

"I rode down the valley to examine the thousands of specimens that lay scattered on each side of the valley along the slopes, which were perhaps 50 feet high; the valley of the Lithodendron, at its widest part, being scarcely a half mile. Along the slopes no vegetation whatever was to be seen, wood being very scarce; the soil was composed of clay and sand mostly, and these petrifactions, broken into millions of pieces, lay scattered all adown these slopes. Some of the large fossil trees were well preserved, though the action of heat and cold had broken most of them in sections from 2 to 20 feet long, and some of these must have been immense trees; measuring the exposed parts of several they varied from 150 to 200 feet in length, and from 2 to 4½ feet in diameter, the centers often containing most beautiful quartz crystals."

Dr. Walter Hough, of the Smithsonian Institution, who has visited the park, writes as follows:

"In the celebrated Petrified Forest, which is some 18 miles from Holbrook, Arizona, on the picturesque Santa Fe Railroad, there are ruins of several ancient Indian villages. These villages are small, in some cases having merely a few houses, but what gives them a peculiar interest is that they were built of logs of beautiful fossil wood. * * * The prehistoric dwellers of the land selected cylinders of uniform size, which were seemingly determined by the carrying strength of a man. It is probable that prehistoric builders never chose more beautiful stones for the construction of their habitations than the trunks of the trees which flourished ages before man appeared on the earth.

"This wood agate also furnished material for stone hammers, arrowheads, and knives, which are often found in ruins hundreds of miles from the forest."