

**BULLETIN NO. 2: THE LEAD  
AND ZINC BEARING ROCKS OF  
CENTRAL KENTUCKY, WITH  
NOTES ON THE MINERAL VEINS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649279289

Bulletin No. 2: The lead and zinc bearing rocks of central kentucky, with notes on the mineral veins by Arthur M. Miller

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

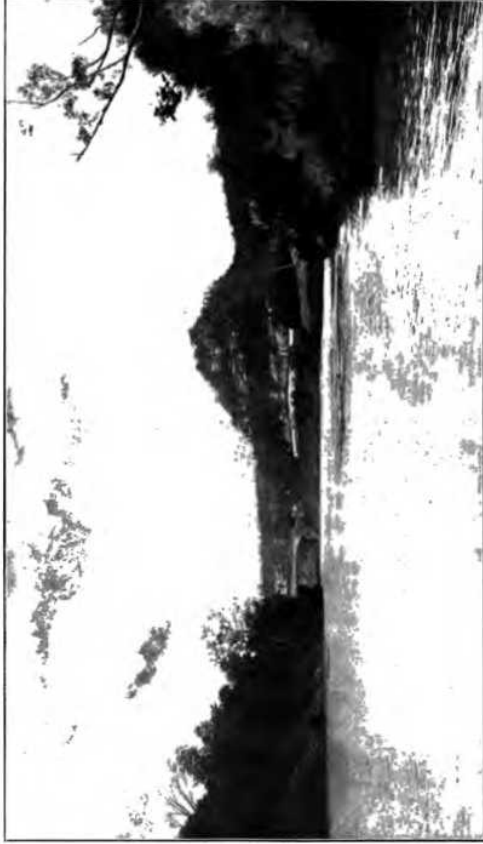
This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

[www.triestepublishing.com](http://www.triestepublishing.com)

**ARTHUR M. MILLER**

**BULLETIN NO. 2: THE LEAD  
AND ZINC BEARING ROCKS OF  
CENTRAL KENTUCKY, WITH  
NOTES ON THE MINERAL VEINS**





Boone's Knoll. Formed of Camp Nelson Limestone, Just West of Kentucky River Fault, Mouth of Hickman Creek.

*J. C. Frame*

# KENTUCKY GEOLOGICAL SURVEY,

CHARLES J. NORWOOD, DIRECTOR.

BULLETIN No. 2.

~~STANFORD LIBRARY~~

THE LEAD AND ZINC BEARING ROCKS

OF

CENTRAL KENTUCKY,

WITH

Notes on the Mineral Veins.

BY

ARTHUR M. MILLER.

OFFICE OF THE SURVEY: LEXINGTON, KY.

1905

CALIFORNIA STATE  
MINING BUREAU

PRINTED BY THE GEO. G. FOWLER COMPANY, LOUISVILLE, KY.

100.

STANFORD LIBRARY

208634

STANFORD LIBRARY  
CALIFORNIA STATE  
MINING BUREAU

## LETTER OF TRANSMITTAL.

---

His Excellency, J. C. W. BECKHAM,  
*Governor of Kentucky.*

SIR:—I have the honor to transmit herewith, for publication, a report on the Lead and Zinc Bearing Rocks of Central Kentucky, prepared by Prof. A. M. Miller, assistant geologist. The chief purpose of this report is to describe the strata in which the veins occur, and to present a classification of certain of the Kentucky representatives of the Ordovician formation (commonly known as Lower Silurian) which will be in accord with the classification now generally adopted by geologists. A proper classification of the rocks of the State is necessary for an intelligent study of the mineral deposits. In this report, Prof. Miller has considered only the lower (Mohawkian) portion of the Ordovician rocks. In a report now in course of preparation, Prof. A. F. Foerste will present a classification of the upper (Cincinnati) portion, hitherto known in the Kentucky reports as the "Hudson."

A report dealing more in detail with the veins themselves will appear in a succeeding bulletin. Another season of field work is required before it can be prepared. It may be said now, however, that enough has already been determined to warrant the statement that the Central Kentucky veins are of greater value—that they reach to greater depth (being continuous from the top of the Trenton down into the Camp Nelson, or "Chazy"); have greater longitudinal extent; are more frequently of good, workable width, and that they carry larger percentages of galena and sphalerite at many points,—than has hitherto been supposed.

Very respectfully,  
CHARLES J. NORWOOD,  
*State Geologist.*



LEXINGTON, KY., Dec. 6, 1904.

PROF. C. J. NORWOOD,

*Director Kentucky Geological Survey.*

DEAR SIR:—I have the honor to transmit to you the accompanying report on the Lead and Zinc Bearing Rocks of Central Kentucky, with Notes on the Mineral Veins. In doing so, I desire to express my indebtedness to Messrs. W. F. Pate, J. H. Gardner, C. R. Gilmour, W. C. Payne and S. A. Denny for valuable assistance in collecting some of the data used in preparing the report.

Very respectfully,

ARTHUR M. MILLER.

## THE CINCINNATI GEANTICLINE.

---

The only formation in Kentucky besides the Lower Carboniferous of the south and western portions of the State which is likely to yield vein ores of economic importance is the Ordovician or Lower Silurian of Central Kentucky; and it would appear that it is only in the lower 550 feet of this series as they are exposed on the top and flanks of a great earth dome, that the outcrops of veins containing such ores are to be looked for.

This "earth dome" is the Central Kentucky culmination of the great "Cincinnati Anticline," an uplift in the form of an arch, the axis of which was formerly supposed to pass through Cincinnati. We now know that it crosses the Ohio river east of this point.

On account of the great extent of this arch (in length from the latitude of Middle Ohio and Indiana to that of Middle Tennessee, and in width something like 100 miles) it is properly termed a "geanticline," a word meaning "earth anticline."

This Cincinnati Geanticline has two points of culmination, one in Jessamine county, Kentucky, and the other in Rutherford county, Tennessee. These may, therefore, be properly termed the Jessamine and Rutherford Domes, respectively. Dome structures especially invite erosion and when of considerable age become greatly truncated, exposing strata originally deep seated. This is the way with the Jessamine Dome of the Cincinnati Geanticline. The lowest strata geologically

exposed in the State are found at the base of the Kentucky river cliffs, where it trenches across this geanticline at a point not far from the apex of the dome. Passing outward from this apex as a center, there is a dip of the strata in every direction, but it is much steeper to the south and southwest, and the uniformity in that direction is much interfered with by a pronounced fault. To the northeast, north and northwest the influence of this dome structure may be traced by the rock dips far beyond the limits of the State.

The first 1,200 to 1,300 feet of strata that are exposed in Northern Kentucky as the result of the erosion of this Jessamine Dome belong to that division of geologic time known as Lower Silurian or Ordovician. In outcrop they constitute an area 8,000 square miles in extent. The counties which include this area lie north of a sinuous line passing through the counties of Lewis, Mason, Fleming, Bath, Montgomery, Clark, Madison, Garrard, Lincoln, Boyle, Marion, Nelson, Bullitt and Jefferson.

A smaller Ordovician area lies in the southern part of the State, along the immediate valley of the Cumberland river from a little below Mill Springs to the Tennessee line. It is a part of the Tennessee Rutherford Dome area. It is included in the counties of Russell, Wayne, Cumberland, Clinton and Monroe, and contains only seventy-nine square miles.

The finest lands agriculturally in the State are bedded upon Ordovician rock. This results both from the character of the rocks composing the Ordovician (they are mainly limestones running relatively high in phosphates) and the great amount of denudation to which they have been subjected. We have here the products of residual decay from a great mass of limestones.

As the result both of dome structure and the great length of time during which these two portions of the uplift have been exposed to atmospheric agencies, they have experienced a vast amount of denudation. It would appear that something