

1879

Section of a Deep Well at Emmetsburg, IA

N. H. Winchell

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SECTION OF A DEEP WELL AT EMMETSBURG, IA.

THE SEPTEMBER MEETING.

At the monthly meeting for September Prof. Winchell exhibited a glass tube containing the drillings of a deep well sunk by W. E. Swan at Emmetsburg, Iowa. The well is 869 feet deep, and the drillings were arranged in succession in the tube about in proportion to the thickness of the formations penetrated by the well. The record of the formations, as given by Mr. Swan, is as follows:

1.	"Yellow Clay." (Loess Loam,)	- - - - -	16 feet.
2.	"Blue Clay." (Boulder Clay and Cretaceous)	- - - - -	204 "
3.	"Dark Sand." }	- - - - - (Dakota, of the Cretaceous. }	30 "
4.	"Grey Sand." }		79 "
5.	"Red Marl." (Jurasso-Triassic.)	- - - - -	22 "
6.	"Broken Limestone."	- - - - -	10 "
7.	"Sandy Limerock."	- - - - -	22 "
8.	"Black Shale."	- - - - -	4 "
9.	"Limerock."	- - - - -	30 "
10.	"Gray Shale."	- - - - -	15 "
11.	"Magnesian Limestone."	- - - - -	224 "
12.	"Gray Shale."	- - - - -	65 "
13.	"Blue Shale."	- - - - -	30 "
14.	"White Sandstone." (St. Croix.)	- - - - -	107 "
15.	"Granite." (Potsdam quartzite.)	- - - - -	6 "
Total,			869 feet.

It was remarked by Prof. Winchell that the Boulder Clay (which is remarkably fine, and tending to become stoneless in that direction) has been probably penetrated without distinguishing it from the clays of the Cretaceous, which will account for the remarkable thickness of "Blue Clay" given. The sand of Nos. 3 and 4 is probably the Dakota sandstone of the Cretaceous, and the Red Marl immediately below he regarded as the Jurasso-Triassic, which is seen so frequently and so thick under the Cretaceous in Dakota. Further evi-

dence of this is seen in the existence of extensive gypsum beds at Fort Dodge, which is also a concomitant of the Jurassic-Triassic Red Marl in Dakota. He inferred from this that this formation probably extends under the Cretaceous in some parts of Minnesota, particularly in the southwestern portion. The numbers below the Red Marl he could not assign to any probable geological horizon, except Nos. 14 and 15. The former he regards as the equivalent of the white sandstones of the Upper Mississippi, commonly known as the Potsdam, but which he regarded as above the horizon of the original Potsdam, and the No. 15, which is a coarse quartzite, and not a granite, he assigned to the horizon of the true Potsdam.

TREASURER'S REPORT FOR 1878.

DR.	To cash received from late Treasurer.....	\$ 8 92
	" " " Secretary, initiation, dues, &c.....	131 50
		<u>\$140 42</u>
CR.	By Cash for rent of hall, (nine months).....	\$ 90 00
	" " gas bills.....	5 40
	Balance in Treasurer's hands.....	45 02
		<u>\$140 42</u>

TREASURER'S REPORT FOR 1879.

DR.	To cash balance from 1878.....	\$ 45 02
	" received from Secretary, initiations, dues, &c.....	194 01
		<u>\$239 03</u>
CR.	By cash paid for rent of room.....	\$108 33
	" " printing Bulletin, postage, express, gas bills, &c....	98 40
	Balance in Treasurer's hands.....	32 30
<i>Attest,</i>	JOHN ROBERTS, Treasurer.	<u>\$239 03</u>