

# SCIENCE

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FRIDAY, NOVEMBER 22, 1901.

THE GEOLOGY OF ORE DEPOSITS.

## II.

### CONTENTS:

<i>The American Association for the Advancement of Science:—</i>	
<i>The Geology of Ore Deposits, II.: PROFESSOR C. R. VAN HISE.....</i>	785
<i>Section E, Geology and Geography: H. B. PATTON .....</i>	794
<i>Membership of the Association.....</i>	800
<i>The American Microscopical Society: PROFESSOR HENRY B. WARD.....</i>	801
<i>Total Eclipse of the Sun: DR. S. A. MITCHELL...</i>	802
<i>Scientific Books:—</i>	
<i>Alaska: W. J. M. Calkins on the Protozoa: PROFESSOR W. M. WHEELER. Annual Report of the Chief of the Bureau of Steam Engineering: PROFESSOR R. H. THURSTON. Roscoe-Schortlemmer's Lehrbuch der organischen Chemie: PROFESSOR W. A. NOYES .....</i>	807
<i>Scientific Journals and Articles.....</i>	812
<i>Societies and Academies.....</i>	813
<i>Discussion and Correspondence:—</i>	
<i>Effect of Diminished Air Pressure: PROFESSOR R. DEC. WARD. Practical Ameliorations of English Grammar: PROFESSOR ALEXANDER F. CHAMBERLAIN .....</i>	814
<i>Shorter Articles:—</i>	
<i>Catalase, a New Enzym of General Occurrence: D. W. MAY. Toads killed by Squash-bugs: ALBERT F. CONRADI.....</i>	815
<i>Current Notes on Meteorology:—</i>	
<i>The Weather Bureau; Monthly Weather Review; Geological Changes of Climate in the Eastern Cordilleras; Tree Planting on the Prairies: PROFESSOR R. DEC. WARD.....</i>	817
<i>Proposed American Electro-chemical Society.....</i>	818
<i>The United States Naval Observatory.....</i>	819
<i>Scientific Notes and News.....</i>	820
<i>University and Educational News.....</i>	824

WE have now traced the metals of many ores to their first positions in the veins. In order to understand other cases, we must recall the facts as to the relations of 'richness with depth.' At this point I take my illustrations from regions outside of Colorado. James Douglass says that in the Appalachian region every copper mine has diminished in richness with depth. Near the surface rich oxidized products were found. Near the level of ground-water rich belts of sulphides occurred—in some instances extraordinarily rich. Below the level of rich sulphides every old mine has passed into cupriferous pyrrhotite, a sulphide of iron bearing a very small percentage of copper. In the Sierra Nevadas, of California, Mr. Lindgren states that near the surface the values range from \$80 to \$300 per ton; but a little way below the level of ground-water these values fall to \$20 or \$30 per ton, and no exceedingly rich deposits are found. You all know the history of the Comstock lode; and of the great bonanzas found above or about the 2,000-foot level, and which did not extend deeper. In the Lake Superior region the greatest iron-ore mines in the world occur; four-fifths or more of the entire product of iron of the United States comes from that region; but at the present time vastly more

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.