CONTRIBUTIONS TO ECONOMIC GEOLOGY 1908

PART I.—METALS AND NONMETALS, EXCEPT FUELS

C. W. HAYES AND WALDEMAR LINDGREN GEOLOGISTS IN CHARGE

WASHINGTON GOVERNMENT PRINTING OFFICE 1909
CONTENTS.

INTRODUCTION, by C. W. Hayes ........................................ 7

INVESTIGATIONS RELATING TO NONMETALLIC MINERAL RESOURCES AND IRON ORES,
by C. W. Hayes .................................................. 12

INVESTIGATIONS RELATING TO DEPOSITS OF METALLIFEROUS ORES, by Waldemar
Lindgren .......................................................... 16

GOLD AND SILVER:
Notes on the economic geology of southeastern Gunnison County, Colo.,
by J. M. Hill .................................................. 21
The Hornsilver district, Nevada, by F. L. Ransome .................. 41
Round Mountain, Nevada, by F. L. Ransome ........................ 44
Mineral resources of the Grants Pass quadrangle and bordering districts,
Oregon, by J. S. Diller and G. F. Kay ........................... 48
Notes on the Bohemia mining district, Oregon, by D. F. MacDonald.. 80
Faulting and vein structure in the Cracker Creek gold district, Baker
County, Oreg., by J. T. Pardee .................................. 85
Survey publications on gold and silver ................................ 94

COPPER:
The Yerington copper district, Nevada, by F. L. Ransome ........... 99
Survey publications on copper .................................... 120

LEAD AND ZINC:
The Tres Hermanas mining district, New Mexico, by Waldemar Lind-
gren .......................................................... 123
Survey publications on lead and zinc ................................ 129

RAPE METALS:
Tin, tungsten, and tantalum deposits of South Dakota, by Frank L. Hess.
Note on a wolframite deposit in the Whetstone Mountains, Arizona, by
Frank L. Hess ............................................. 131
Survey publications on antimony, chromium, nickel, platinum, quick-
silver, tin, tungsten, uranium, vanadium, etc. ..................... 166

IRON AND MANGANESE:
Tonnage estimates of Clinton iron ore in the Chattanooga region of Ten-
sessee, Georgia, and Alabama, by E. F. Burchard ................ 169
The Taylor Peak and Whitepine iron-ore deposits, Colorado, by E. C.
Harder .................................................. 188
The Hanover iron-ore deposits, New Mexico, by Sidney Paige .... 199
The iron ores of the Appalachian region in Virginia, by E. C. Harder 215
Manganese deposits of the United States, by E. C. Harder ........ 255
Survey publications on iron and manganese ores ................... 278

ALUMINUM ORES:
Survey publications on aluminum ores ............................ 282

ASPHALT:
An occurrence of asphaltite in northeastern Nevada, by Robert Anderson 283
Grahamite deposits of southeastern Oklahoma, by J. A. Taff ........ 286
Survey publications on asphalt .................................... 288
CONTENTS.

BUILDING STONES:
Marble prospects in the Chiricahua Mountains, Arizona, by Sidney Paige ........ 299
Survey publications on building stone and road metal ................................ 312

CEMENT AND CONCRETE MATERIALS:
The Niobrara limestone of northern Colorado as a possible source of Portland cement material, by G. C. Martin .......... 314
Cement material near Havre, Mont., by L. J. Pepperberg .......... 327
Ganister in Blair County, Pa., by Charles Butts ........ 337
Survey publications on cement and cement and concrete materials .......... 343

CLAYS:
Notes on the clays of Florida, by George C. Matson .................. 346
Survey publications on clays, fuller's earth, etc .......................... 358

LIME AND MAGNESITE:
Survey publications on lime and magnesite .................................... 361

GYPSUM AND PLASTERS:
Survey publications on gypsum and plasters ...................................... 362

GLASS SAND, ETC.:
Survey publications on glass sand and glass-making materials ............... 363

ABRASIVES:
Survey publications on abrasive materials ....................................... 364

MINERAL PAINT:
Survey publications on mineral paint ............................................. 366

PHOSPHATES:
Survey publications on phosphates and other mineral fertilizers .............. 367

SALINES:
Sodium sulphate in Soda Lake, Carriso Plain, San Luis Obispo County, Cal., by Ralph Arnold and H. R. Johnson .......... 369
Survey publications on salines, including salt, borax, and soda ............... 372

SULPHUR AND PYRITE:
Sulphur deposits near Thermopolis, Wyo., by E. G. Woodruff .......... 373
Survey publications on sulphur and pyrite ...................................... 381

MISCELLANEOUS NONMETALLIC PRODUCTS:
Mica deposits of South Dakota, by D. B. Sterrett ................ 382
Survey publications on miscellaneous nonmetallic products .................... 398

INDEX .................................................................................. 401

ILLUSTRATIONS.

PLATE 1. Sketch map of southeastern Gunnison County, Colo., showing boundaries of mining districts, distribution of sedimentary areas, and location of mines ................................................................. 30

II. Map showing limestones, gold-quartz mines, and prospects of Grants Pass quadrangle and bordering districts, Oregon ........ 48

FIGURE 1. Generalized structure sections in southeastern Gunnison County, Colo ............................................................... 27

2. General plan of a level in the Sunnyside mine, Round Mountain, Nev., showing the curved strike of the deposit ........ 45

3. Geologic sketch map of part of Cracker Creek mining district, Baker County, Oreg. ........ 87
ILLUSTRATIONS.

Figure 4. Section along line A-B, figure 3 ........................................ 89
5. Detail of faulting northeast of Columbia Hill, Baker County, Ore. ......... 90
6. Map of Yerington, Nev., and vicinity ........................................ 100
7. Generalized geologic section across Singatse Ridge .......................... 105
8. Diagrammatic sketch of quartz vein in Forest City mine, 1$ miles east of Ore ville, S. Dak ......................................................... 141
9. General geologic map of Taylor Peak district, Pitkin and Gunnison counties, Colo., showing location of iron-ore deposits ......................... 189
10. Detailed map of the Cooper Creek iron-ore deposits, Taylor Peak district, Colorado ................................................................. 191
11. Detailed map of the Twenty Percent Creek and Taylor River iron-ore deposits, Taylor Peak district, Colorado ........................................ 193
12. Detailed map of the Whitepine iron-ore deposits, Gunnison County, Colo 195
13. Map showing geologic relations in the Hanover iron-ore district, New Mexico ................................................................. 200
14. Diagram showing relation of trend of dikes to joints and sheeting in Hanover iron-ore district, New Mexico ......................................... 203
15. Map showing the distribution of various classes of iron ores in Virginia 216
16. Generalized section showing the stratigraphic position of the various classes of iron ores in the Appalachian region of Virginia .............. 223
17. Vertical section showing the structure and position of the specular hematite beds at the Arcadia mine, near Buchanan, Va. .................. 226
18. Vertical section through the fossil hematite bed and adjacent rocks at the Horse Mountain mine, near Low Moor, Va ............................ 230
19. Vertical section showing the structure of mountain brown ore occurring as a mammillary mass in clay at the Mary Creek mine, near Vesuvius, Va ......................................................... 236
20. Horizontal plan showing the structure of the brown-ore vein occurring along a fault in quartzite at the Dixie mine, near Vesuvius, Va. .... 239
21. Vertical section showing the structure of the valley brown ore deposits at the Rich Hill mine, near Reed Island, Va ................................. 243
22. Vertical section showing the structure of the Oriskany brown-ore deposit at the Wilton mine, near Glen Wilton, Va ................................. 248
23. Map of southeastern Oklahoma, showing location of grahamite deposits ................................................................. 287
24. Map showing location of marble prospects in Chiricahua Mountains, Arizona ................................................................. 300
25. Ideal section illustrating structural relations southeast of Fort Bowie, Ariz ................................................................. 301
26. Map of a portion of the foothill region of northeastern Colorado, showing areal distribution of Niobrara limestone ................................ 315
27. Sketch map of Montana, showing location of cement materials near Havre ................................................................. 327
28. Cross section showing stratigraphy and structure from crest of Owl Creek Mountains to Owl Creek ........................................ 375
29. Generalized cross section of No. 1 or New York mica mine, near Custer, S. Dak ................................................................. 388
30. Plan of No. 2 or White Spar mica mine, near Custer, S. Dak .............. 390
31. Generalized cross section of Crown mica mine, near Custer, S. Dak., with sketch showing relation of pegmatite dike to inclosing gneiss .... 392
32. Plan and cross section of Great Northern or Old Mike mica mine, near Custer, S. Dak ................................................................. 393