THE STATE OF WYOMING
GEOLOGIST'S OFFICE

BULLETIN 17

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OF
WYOMING GEOLOGY
1823-1916

By GLADYS G. BOVEE

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BIBLIOGRAPHY AND INDEX OF WYOMING GEOLOGY

INTRODUCTION

The bibliography of Wyoming geology, including paleontology, petrology, and mineralogy, is believed to be fairly complete for the years 1823 to 1916, inclusive. The bibliographies of American geology, published by the U. S. Geological Survey from year to year, have been used *in toto* in so far as they apply to Wyoming.

The Bibliography is arranged by years, under which appear titles, names of authors, publication references and short explanations. The Authors' Index and Cross Index refer by number to the title as listed and numbered in the Bibliography. The cross references are thought to be sufficiently complete to assure the finding of an article when the index is entered in any of several different ways.

ABBREVIATIONS OF TITLES OF SERIALS

Am. Assoc. Adv. Sci., Proc.—American Association for Advancement of Science, Proceedings.
Am. Geologist—American Geologist.
Am. Inst. Min. Eng.—American Institute of Mining Engineers.
Am. Jour. Sci.—American Journal of Science.
Am. Min. Cong.—American Mining Congress.
Am. Mus. Nat. Hist.—American Museum of Natural History.
Am. Naturalist—American Naturalist.
Am. Paleontology—American Paleontology.
Am. Philos. Soc.—American Philosophical Society.
Annales de Geographie—Annales de Geographie.
Annales des Mines—Annales des Mines.
Boston Soc. Nat. Hist.—Boston Society of Natural History.
Bot. Gazette—Botanical Gazette.
British Assoc. Adv. Sci.—British Association for the Advancement of Science.
California Acad. Sci.—California Academy of Sciences.
Canadian Min. Jour.—Canadian Mining Journal.
Canadian Min. Inst.—Canadian Mining Institute.
Canadian Naturalist—Canadian Naturalist.
Carnegie Inst. Washington—Carnegie Institution of Washington.
Carnegie Mus.—Carnegie Museum.
Cincinnati Quart. Jour. Sci.—Cincinnati Quarterly Journal of Science.
Cincinnati Soc. Nat. Hist.—Cincinnati Society of Natural History.
Columbia Univ. Geol. Dept.—Columbia University, Geological Department.
Coal Age—Coal Age.
Colorado School of Mines—Colorado School of Mines.
Colorado Sci. Soc.—Colorado Scientific Society.
Eng. and Min. Jour.—Engineering and Mining Journal.
Geol. Mag.—Geological Magazine.
Geol. Soc. America—Geological Society of America.
Geol. Soc. Quart. Jour.—Geological Society Quarterly Journal.
Harvard College Mus. Comp. Zool.—Harvard College, Museum of Comparative Geology.
Internat. Cong. Geol.—International Congress of Geologists.
Jour. Geology—Journal of Geology.
Kansas Acad. Sci.—Kansas Academy of Sciences.
Kansas City Rev.—Kansas City Review.
Kansas Univ. Quart.—Kansas University Quarterly.
London Geol. Soc.—London Geological Society.
MacMillan's Mag.—MacMillan's Magazine.
Min. and Eng. World—Mining and Engineering World.

Abbreviations of Titles of Serials—*Continued*

Min. Industry—Mining Industry.
Mines and Methods—Mines and Methods.
Mines and Minerals—Mines and Minerals.
Mineral Industry—Mineral Industry.
Min. Sci.—Mining Science.
Min. and Sci. Press—Mining and Scientific Press.
Min. World—Mining World.
Nature—Nature.
Nat. Geog. Mag.—National Geographic Magazine.
New York Acad. Sci.—New York Academy Science.
Ottawa Nat.—Ottawa Naturalist.
Petermann's Mitt.—Petermann's Mitteilungun.
Philadelphia Acad. Sci.—Philadelphia Academy of Natural Science.
Plant World—Plant World.
Pop. Sci. Monthly—Popular Science Monthly.
Salt Lake Min. Rev.—Salt Lake Mining Review.
School of Mines Quart.—School of Mines Quarterly.
Science—Science.
Sci. Am. Suppl.—Scientific American Supplement.
Scottish Geog. Mag.—Scottish Geographical Magazine.
Smithsonian Inst. Coll.—Smithsonian Institute, Miscellaneous Collections.
Soc. Geol. de France—Societe geologique de France.
S. Dakota Geol. Survey—South Dakota Geological Survey.
Terr. Geologist, Ann. Rept.—Territorial Geologist, Annual Report.
Torreya—Torreya.
Torrey Bot. Club—Torrey Botanical Club.
U. S. Army, Chief of Engineers—United States Army, Chief of Engineers.
U. S. Geol. Survey—United States Geological Survey.
U. S. Nat. Museum—United States National Museum.
Washington Acad. Sci.—Washington Academy of Sciences.
Washington Geol. Soc.—Washington Geological Society.
Washington Philos. Soc.—Washington Philosophical Society.
Western Eng.—Western Engineering.
Wyoming Hist. and Geol. Soc.—Wyoming Historical and Geological Society.
Wyoming, Geologist's Office.—Wyoming, Geologist's Office.
Wyoming Univ., Expr. Sta.—Wyoming University, Experiment Station.
Wyoming Univ. School of Mines.—Wyoming University School of Mines.
Zeitschr. F. prak. Geol. Jahrg.—Zeitschur F. prakt Geologie, Jahrg.

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Gives detailed description of the geologic sections at Bear River City and vicinity, in western Wyoming, and shows that this formation, formerly considered to be of Laramie or later age, is intermediate between the Jurassic and Colorado Cretaceous and probably above the Dakota. Of its thirty species of molluscan remains none have been found in the true Laramie. Accompanied by map and four sections.

218. Restoration of the Claosaurus and Ceratosaurus, Othniel C. Marsh.—Am. Jour. Sci., 3d ser., vol. xliv, Appendix, pp. 343-349.

219. Fossil mammals of Wasatch and Wind River beds, Henry F. Osborn and J. L. Wortman.—Am. Mus. Nat. Hist., Bull., vol. iv, pp. 81-147; (abstract), Am. Jour. Sci., 3d ser., vol. xlv, pp. 159-160.

Includes the following special articles: Homologies and nomenclature of the mammalian molar cusps; the classification of the Perissodactyls; the ancestry of Felidae; taxonomy and morphology of the primates, credonts, and ungulates. 1. Wasatch. 2. Wind River; geological and geographical sketch of the Bighorn Basin; and narrative of the expedition of 1891.

220. The eruptive rock of Electric Peak and Sepulchre Mountain, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Twelfth Ann. Rept., pt. 1, pp. 577-664, pls. xlvi-liii; (abstract), Am. Jour. Sci., 3d ser., vol. xliv, p. 429 (½ p.); Am. Geologist, vol. xiv, pp. 117-118, 1894.

Gives a geologic sketch of the region. Describes the diorite, porphyrite, and dyke rocks of Electric Peak and the andesite, dacite, and tuff of Sepulchre Mountain, and discusses their correlation and classification as igneous rocks.

221. The fossil forests of the Yellowstone, Walter H. Weed.—School of Mines Quart., vol. xiii, pp. 230-236.

Describes the geologic structure of the region and states that the fossil trees are found in a series of breccias and tuffs and have been

exposed by weathering of the rocks. These forests grew upon the flanks of a volcano and were covered and preserved by the debris of its eruptions.

1893.

222. Notes on the mineral resources of the State, W. C. Knight.—Wyoming, Exper. Sta., Bull. 14, pp. 103-212.

Gives the geology of the experiment farms and discusses the minerals found in each county.

223. The Ceratops beds of Converse County, John B. Hatcher.—Am. Jour. Sci., 3d ser., vol. xlv, pp. 135-144.

Describes the geographic distribution of the Ceratops beds in this region, the lithologic character of the strata and their stratigraphic position. Discusses the age of the Ceratops beds as indicated by the fossils, and the probable conditions attending their deposition.

224. Description of a new fossil species of Chara, Frank Hall Knowlton.—Bot. Gazette, vol. xviii, pp. 141-142.

Describes *Chara stantoni* n. sp. from the Bear River Cretaceous formation of Wyoming.

225. The skull and brain of Claosaurus, Othniel C. Marsh.—Am. Jour. Sci., 3d ser., vol. xlv, Appendix, pp. 83-86.

Describes the skull of Claosaurus found in Ceratops beds in Wyoming.

226. Revision of species of Coryphodon, Charles Earle.—Am. Mus. Nat. Hist., Bull., vol. iv, pp. 149-166, 1892; (abstract), Am. Jour. Sci., 3d ser., vol. xlv, p. 160 (⅓ p.).

Compares the Coryphodon material recently procured from the Wasatch formation in Wyoming with that contained in other collections.

227. Fossil Ostracoda from southeast Wyoming and from Utah, T. Rupert Jones.—Geol. Mag., Dec. III, vol. x, pp. 383-391.

Describes some species from the Cretaceous of Wyoming and Utah.

228. Ancestors of the tapir from the lower Miocene of Dakota, J. L. Wortman and C. Earle.—Am. Mus. Nat. Hist., Bull., vol. v, pp. 159-180; (abstract), Am. Naturalist, Vol. XXVIII, p. 416 (½ p.), 1894.

Discusses the origin of the tapir in America, describes species obtained from the Miocene of South Dakota, and reviews the evidence of the relationship between American and European species of Protapirus.

229. The Titanotherium beds, John B. Hatcher.—Am. Naturalist, vol. xxvii, pp. 204-221.

Describes the geographic distribution of these beds, their lithologic composition and stratigraphic position, and discusses the character of the fauna by which they have been divided into lower, middle, and upper beds.

230. Notes on some little known American fossil tortoises, G. Baur.—Philadelphia Acad. Sci., Proc., 1893, pt. iii, pp. 411-430.

Reviews previous descriptions and classifications of some Cretaceous species of Wyoming and Colorado.

231. A dissected volcano of Crandall Basin, Wyoming, Joseph P. Iddings.—Jour. Geology, vol. i, pp. 606-611; (abstract), Am. Naturalist, vol. xxviii, p. 603 (⅓ p.), 1894.

Describes the general geologic structure of the region and the petrographic character of the volcanic rocks, with remarks on the degrees of crystallization shown in rocks which occurred at approximately the same depth beneath the volcano, viz., 10,000 feet or more.

232. The formation of the hot springs deposits, Walter H. Weed.—Internat. Cong. Geol., Compte. Rendu., 5th sess., pp. 360-363.

Describes the formation of hot spring deposits in the Yellowstone National Park.

233. Yellowstone Park, Arnold Hague.—Internat. Cong. Geol., Compte Rendu, 5th sess., pp. 336-359.

Describes the geologic history of the Park and the physical and geologic features of the route through the Park traversed by the excursion.

234. The Yellowstone region and its geysers, Henry M. Cadell.—Scottish Geog. Mag., vol. viii, pp. 233-248.

Describes the topographic and geologic features of the region and the thermal springs and their deposits. Illustrated by a colored geologic sketch map and reproductions of photographs of the Mammoth Hot Springs and the Giant Geyser.

1894.

235. A geological reconnaissance in northwest Wyoming, George H. Eldridge.—U. S. Geol. Survey, Bull. 119, 72 pp., pls., i-iv, fig. 1.

Describes the topography of the Bighorn Mountain region, the general character of the Archean, Cambrian, Silurian, Carboniferous, Trias, Jura, Cretaceous, and Tertiary formations, the structure of the mountain ranges and the occurrence of coal, petroleum, building materials, and gold.

236. Restoration of Camptosaurus, Othniel C. Marsh.—Am. Jour. Sci., 3d ser., vol. xlvii, Appendix, pp. 245-246, pl. vi; Geol. Mag., Dec. IV, vol. i, pp. 193-195, pl. vi; Sci. Am. Suppl., vol. xxxvii, pp. 15209-15210.

This restoration is based on a type specimen of Camptosaurus dispar from the Atlantosaurus beds of Wyoming.

237. Formation du tuf calcaire ou travertin et des dépots siliceux par la végetation des sources d'eau chaude, Ed. Jardin.—Soc. Acad., de Brest, 2d ser., vol. xix, pp. 33-75.

Reviews the paper by W. H. Weed on the travertine deposits of the Yellowstone National Park and mentions the occurrence of hot spring waters in Virginia, Arkansas, and California.

1895.

238. Coals and coal measures of Wyoming, W. C. Knight.—U. S. Geol. Survey, Sixteenth Ann. Rept., pt. iv, pp. 208-215.

Gives notes on the occurrence of coal in the Cretaceous strata of Wyoming in a paper, by E. W. Parker, on the "Production of coal in 1894".

239. The Douglas Creek placers, Albany, Wyoming, E. P. Snow.—Eng. and Min. Jour., vol. lx, pp. 539-541, map.

Describes the occurrence of this placer in the Medicine Bow Range.

240. The Fourmile placer fields of Colorado and Wyoming, E. P. Snow.—Eng. and Min. Jour., vol. lx, pp. 102-104.

Describes the occurrence of the gold placers in Routt County, Colorado, and Carbon County, Wyoming.

241. The Hartville iron ore deposits in Wyoming, E. P. Snow.—Eng. and Min. Jour., vol. lx, pp. 320-321.

Describes the character and geologic relations of the ore body.

242. Precious stones, George F. Kunz.—U. S. Geol. Survey, Sixteenth Ann. Rept., pt. iv, pp. 595-605.

Notes on the occurrence of diamonds in Wisconsin and California, rubies in North Carolina, sapphires in Montana, beryl in Maine, quartz gems in Pennsylvania, North Carolina, California, Wyoming and Arizona, utahlite, opal and hyalite from Utah, and emeralds in the Carolinas.

243. The public lands and their water supply, Frederick Haynes Newell.—U. S. Geol. Survey, Sixteenth Ann. Rept., pt. ii, pp. 457-533, pls. xxxv-xxxix, figs. 48-57.

Describes the character of the public lands of the western states and their water supply.

244. The reptilia of the Baptanodon beds, Othniel C. Marsh.—Am. Jour. Sci., 4th ser., vol. 1, pp. 405-406.

Describes the occurrence of species of Baptanodon in Utah, Oregon and Wyoming.

245. Absarokite-shoshonite-banakite series, Joseph P. Iddings.—Jour. Geology, vol. iii, pp. 935-959.

Describes the petrographic characters and gives chemical analyses of absarokite, shoshonite, and banakite from the Yellowstone Park and of similar rocks in neighboring regions.

1896.

246. Catalogue and index to North American geology, 1732 to 1891, N. H. Darton.—U. S. Geol. Survey, Bull. 127, 1045 pp.

Contains an authors' list of titles of papers arranged chronologically under each author and a subject index.

247. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for 1892 and 1893, F. B. Weeks.—U. S. Geol. Survey, Bull. 130, 210 pp.

Contains an author's list of titles of papers and a subject index.

248. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1894, F. B. Weeks.—U. S. Geol. Survey, Bull. 135, 141 pp.

249. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1895, F. B. Weeks.—U. S. Geol. Survey, Bull. 146, 130 pp.

250. The analysis of the Salt Creek petroleum, Wyoming, E. E. Slosson.—Wyoming Univ. School of Mines, pet. ser., Bull. 1, pp. 23-47.

Describes the chemical character and composition of the petroleum.

251. The geology and technology of the Salt Creek oil field, Wyoming, W. C. Knight.—Wyoming Univ., School of Mines, pet. ser., Bull. 1, 22 pp.

Describes character and occurrence of the oil in the Cretaceous strata.

252. The Salt Creek oil field, W. C. Knight.—Eng. and Min. Jour., vol. lxi, pp. 87-88.

Describes briefly the Cretaceous strata in which the oil occurs.

253. Silurian strata in the Bighorn Mountains, Wyoming, and the Black Hills, South Dakota, Charles E. Beecher.—Am. Geologist, vol. xviii, pp. 31-33.

Discusses the occurrence of fossils of the Niagara and Trenton facies and remarks on the necessity of a knowledge of the complete faunas for purposes of correlation.

254. A new species of Dinictis from the White River Miocene of Wyoming, Elmer S. Riggs.—Kansas Univ. Quart., vol. iv, pp. 237-241, fig. 1.

Describes and figures the skull of *Dinictis paucidens* and compares it with other species of Dinictis.

255. Species of Hyracotherium and allied perissodactyls from the Wasatch and Wind River beds of North America, J. L. Wortman.—Am. Mus. Nat. Hist., Bull., vol. viii, pp. 81-110, pl. ii, figs. 1-18.

Describes the perissodactyls from the horizons named in Wyoming and New Mexico.

256. Some localities for Laramie mammals and horned dinosaurs, John B. Hatcher.—Am. Naturalist, vol. xxx, pp. 112-120, with map of a part of Wyoming.

Describes the localities in Wyoming where these fossils have been found, with remarks on the occurrence and fauna of the Laramie and Ceratops beds.

257. Yellowstone National Park folio, Arnold Hague.—U. S. Geol. Survey, Atlas Yellowstone National Park folio (no. 30) figs 1-11.

Describes the physiography and general geologic features and history of the region. Includes topographic and geologic maps.

258. Extrusive and intrusive igneous rocks as products of magmatic differentiation, Joseph P. Iddings.—London Geol. Soc. Quart. Jour., vol. lii, pp. 606-617.

Describes the relations of the eruptive rocks of Electric Peak and Sepulchre Mountain to the whole series of eruptions occupying Tertiary time, and which spread out over large areas in Montana, Wyoming, and Idaho. Presents a map showing the extent of the volcanic area.

259. Igneous rocks, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Geol. Atlas, Yellowstone National Park folio (no. 30).

Describes the character and distribution of the extrusive and intrusive rocks.

260. The age of the igneous rocks of the Yellowstone Park, Arnold Hague.—Am. Jour. Sci., 4th ser., vol. i, pp. 445-457.

Reviews the geologic history of the Park, mentions the fossil plant and invertebrate remains found in the Tertiary strata, and discusses the bearing of the data on the age of the igneous rock and the character of the post-Laramie movement.

261. Sedimentary rocks, Yellowstone National Park, Walter H. Weed.—U. S. Geol. Survey, Geol. Atlas, Yellowstone National Park folio (no. 30).

Describes the character and distribution of the Algonkian, Cambrian, Silurian, Devonian, Carboniferous, Juratrias, Cretaceous, Tertiary, and Pleistocene formations and the hot spring deposits.

262. The Tertiary flora of the Yellowstone National Park, Frank Hall Knowlton.—Am. Jour. Sci., 4th ser., vol. ii, pp. 51-58.

Gives a brief account of the geology of the Park, names the fossil plants found in the Tertiary beds, and discusses the relations of the present and the Tertiary floras.

263. On the nature of igneous intrusions, Israel Cook Russell.—Jour. Geology, vol. iv, pp. 177-194.

Describes the different forms of igneous intrusions as shown by intruded sheets, laccolites, plutonic plugs, and great dome-shaped uplifts, and discusses their origin.

264. Igneous intrusions in the neighborhood of the Black Hills of Dakota, Israel Cook Russell.—Jour. Geology, vol. iv, pp. 23-43, pls. i-iii.

Describes the occurrence of igneous intrusions in sedimentary rocks, differing in form from either laccolites or volcanic rocks. Gives a detailed description of the several igneous masses.

1897.

265. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for 1896, F. B. Weeks.—U. S. Geol. Survey, Bull. 149, 152 pp.

Contains a list of titles of papers arranged alphabetically by authors' names and a subject index.

266. Map of the Black Hills of South Dakota and Wyoming, with full description of mineral resources, etc., Samuel Scott.—40 pp., geologic map, Custer City, South Dakota.

Gives brief notes on the geologic formations and igneous rocks and the occurrence of minerals in the Black Hills. Presents a geologic map of the region.

267. The petroleum fields of Wyoming, W. C. Knight.—Mineral Industry for 1896, pp. 442-450.

Describes the geologic features of the region and the occurrence of the oil.

268. Analysis of Popo Agie, Lander, and Shoshone petroleum, E. E. Slosson.—Wyoming Univ., School of Mines, pet. ser., Bull. 2, pp. 21-34.

Describes the chemical character and composition of the oils.

269. The geology of the Popo Agie, Lander, and Shoshone oil fields, W. C. Knight.—Wyoming Univ., School of Mines, pet. ser., Bull. 2, 20 pp.

Describes the general geology of the region.

270. The Leucite Hills of Wyoming, James Furman Kemp.—Geol. Soc. America, Bull., vol. viii, pp. 169-182, pl. 14.

Describes the geology of the hills and the petrographic and chemical characters of the rocks.

271. Stratigraphy and paleontology of the Laramie and related formations in Wyoming, Timothy W. Stanton and Frank Hall Knowlton.—Geol. Soc. America, Bull., vol. viii, pp. 127-156; (review by A. Hollick), Torrey Bot. Club, Bull., vol. xxiv, p. 26 (½ p.).

Describes the stratigraphic and paleontologic features of the various beds.

272. The Stylinodonta, a suborder of Eocene edentates, Othniel C. Marsh.—Am. Jour. Sci., 4th ser., vol. iii, pp. 137-146, 9 figs.

Describes and figures *Stylinodon mirus* and discusses the origin of the edentates.

273. Some geologic causes of the scenery of the Yellowstone National Park, Alja Robinson Crook.—Am. Geologist, vol. xx, pp. 159-167.

Describes the general physiographic features and geologic history of the Park.

274. Igneous rocks of the Leucite Hills and Pilot Butte, Whitman Cross.—(abstract), Science, new ser., vol. v, p. 361.

Describes the occurrence and petrographic and chemical characters of wyomingite, orendite, and madupite. Discusses the classification and nomenclature, and describes the inclusions in the Leucite Hills rocks.

1898.

275. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for 1897, F. B. Weeks.—U. S. Geol. Survey, Bull. 156, 130 pp.

Contains a list of titles of papers arranged alphabetically by authors' names and a subject index.

276. The building stones and clays of Wyoming, W. C. Knight.—Eng. and Min. Jour., vol. lxvi, pp. 546-547 (½ p.).

Includes brief notes on their occurrence.

277. The Wyoming copper region, J. C. Kennedy.—Eng. and Min. Jour., vol. lxvi, pp. 640-641, 1 fig.

Describes the general geology of the locality in southern Wyoming and the occurrence of the copper.

278. The Wyoming oil fields, Arthur Lakes.—Mines and Minerals, vol. xix, p. 80, 1 fig.

Describes the occurrence of oil in the Salt Creek field.

279. Petroleum, F. H. Oliphant.—U. S. Geol. Survey.—Nineteenth Ann. Rept., Pt. VI (continued), pp. 1-166.

Includes statistics of production, notes on occurrence in Indiana, by W. S. Blatchley, and notes on occurrence in California, Texas, and Wyoming, by W. C. Knight.

280. The natural soda deposits of Wyoming, W. C. Knight.—Mineral Industry for 1897, pp. 612-616, 2 figs.

Describes the occurrence and character of the soda deposits.

281. New species of Ceratopsia, Othniel C. Marsh.—Am. Jour. Sci., 4th ser., vol. vi, p. 92.

Describes two new species from the Ceratops beds.

282. A complete skeleton of *Coryphodon radians*, Henry F. Osborn.—Am. Mus. Nat. Hist., Bull., vol. x, pp. 81-91, pl. x, 2 figs.; Science, new. ser., vol. vii, pp. 585-588, 1 fig.

Notes upon the location of the animal. Describes new material from the Wasatch and Wind River beds, and reviews the literature of the genus.

283. Some new Jurassic vertebrates from Wyoming, (first paper), W. C. Knight.—Am. Jour. Sci., 4th ser., vol. v, p. 186, 2 figs.

Describes the two new species of Ceratodus.

284. Some new Jurassic vertebrates from Wyoming, second paper, W. C. Knight.—Am. Jour. Sci., 4th ser., vol. v, pp. 378-381, 3 figs.

Describes a new genus and species, *Megalneusaurus rex*. Suggests the name Como group for the beds in which the fossil occurs.

285. The sacrum of Morosaurus, S. W. Williston.—Kansas Univ. Quart., vol. vii, pp. 173-175, 2 figs.

Describes material from Converse County, Wyoming.

286. The standing fossil forests of Yellowstone Park, Frank Hall Knowlton.—Plant World, vol. i, pp. 53-55, pl. 1.

Describes the general features of the fossil forests.

287. Some conditions affecting geyser eruptions, Thomas Augustus Jagger, jr.—Am. Jour. Sci., 4th ser., vol. v, pp. 323-333, 1 fig.; (abstract), Nature, vol. lviii, pp. 261-263.

Describes geyser phenomena of the Yellowstone National Park and the results of certain experiments. Discusses their bearing on the question of the cause of the various phases of geyser activity.

1899.

288. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for 1898, F. B. Weeks. —U. S. Geol. Survey, Bull. 162, 163 pp.

Contains a list of titles of papers arranged alphabetically by authors' names and a subject index.

289. Oil fields of Crook and Uinta counties, W. C. Knight and E. E. Slosson.—Wyoming Univ., School of Mines, pet. ser., Bull. 3, 31 pp., maps.

290. Absaroka folio, Wyoming, Arnold Hague.—U. S. Geol. Survey, Geol. Atlas, Absaroka folio (no. 52).

Describes the topographic features, the character and occurrence of the Archean, Cambrian, Silurian, Devonian, Carboniferous, Cretaceous, and volcanic rocks of the Crandall and Ishawooa quadrangles. Includes topographic and geologic maps and columnar sections.

291. A reconnaissance in Jackson Basin, F. B. Weeks.—(abstract), Science, new ser., vol. ix, p. 454 (⅓ p.).

292. The fossil fields expedition to Wyoming, Charles Schuchert. —Science, new ser., vol. x, pp. 725-728.

Gives an account of the expedition and the results obtained.

293. Notes on the Lower Cretaceous plants from the Hay Creek coal field, William Morris Fontaine.—U. S. Geol. Survey, Nineteenth Ann. Rept., Pt. II, pp. 645-702, pls. clx-clxix.

Describes the section of the coal beds and the fossils collected.

294. Early Tertiary volcanoes of the Absaroka Range, Arnold Hague.—Washington Geol. Soc., Presidential Address, pp. 25, pls. i-iii; Science, new ser., vol. ix, pp. 425-443.

Describes the character and occurrence of the volcanics.

295. The igneous rocks of the Absaroka Range and Two Ocean Plateau and of outlying portions of the Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 269-325, pl. xxxv.

Describes the petrographic character of the breccias, flows, and dike rocks.

296. Absarokite-shoshonite-banakite series, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 326-355, pls. xxxvi-xxxviii.

Describes the petrographic and chemical characters.

297. Recent basalts, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 433-440, pls. lvii-lix.

Describes their distribution and petrographic characters.

298. Cambrian fossils from the Yellowstone National Park, Charles D. Walcott.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 440-478, pls. lx-lxv.

Gives a summary of the faunas and descriptions of the Cambrian fossils collected.

299. The dissected volcano of Crandall Basin, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 215-268, pls. xxvii-xxxiv.

Describes the general geology of the region, the occurrence and character of the breccias, the intrusive rocks, and the granular core and dikes. Includes chemical analyses.

300. Devonian and Carboniferous fossils from Yellowstone National Park, George H. Girty.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 479-599, pls. lxiv-lxxi.

Discusses the relations of the faunas and describes the fossils collected.

301. The igneous rocks of Electric Peak and Sepulchre Mountain, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 89-148, pls. xiii-xxii, figs. 1-3.

Describes geologic features of region and character of the intrusive and volcanic rocks.

302. Fossil flora, Yellowstone National Park, Frank Hall Knowlton.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 651-882, pls. lxxvii-cxxi.

Describes the fossil flora collected in the region and their relations, and the character and occurrence of the fossil forests.

303. Descriptive geology of the Gallatin Mountains, Yellowstone National Park, Joseph P. Iddings and Walter H. Weed.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 1-59, pls. i-x.

Describes the character and occurrence of the Cambrian, Silurian, Devonian, Carboniferous, Juratrias, and Cretaceous strata and igneous rocks of the region.

304. The intrusive rocks of Gallatin Mountain, Bunsen Peak, and Mount Evarts, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 60-88, pls. xi-xii.

Describes the petrographic and chemical characters of the rocks.

305. Descriptive geology of Huckleberry Mountain and Big Game Ridge, Yellowstone National Park, Arnold Hague.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 165-202, pls. xxiv-xxv.

Describes the general geographic and geologic features of the region.

306. Mesozoic fossils from Yellowstone National Park, Timothy W. Stanton.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 600-650, pls. lxxii-lxxvi.

Describes the relations of the faunas of the several horizons and characters of the fossils collected.

307. The rhyolites in Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 356-432, pls. xxxix-lvii, fig. 4.

Describes the megascopic and microscopic characters of the rhyolites and their distribution in the Park.

308. Geology of the southern end of the Snowy Range, Yellowstone National Park, Walter H. Weed.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 203-214, pl. xxvi.

Describes the general physiographic and geologic features of the region.

309. Descriptive geology of the northern end of the Teton Range, Yellowstone National Park, Joseph P. Iddings.—U. S. Geol. Survey, Mon. XXXII, Pt. II, pp. 149-164, pl. xxiii.

Describes the structure and the character and occurrence of the Cambrian, Silurian, Devonian, Carboniferous, Juratrias, and Cretaceous rocks of the region.

310. The piracy of the Yellowstone, John Paul Goode.—Jour. Geology, vol. vii, pp. 261-271, 5 figs.

Describes the postglacial history and drainage of the upper Yellowstone Valley.

311. Notes on a set of rocks from Wyoming, collected by Prof. W. C. Knight, of the University of Wyoming, Benjamin F. Hill.—School of Mines Quart., vol. xx, pp. 357-364, 5 figs.

Describes the petrographic character of the rocks collected.

1900.

312. Bibliography and index of North American geology, paleontology, and mineralogy for the year 1899, F. B. Weeks.—U. S. Geol. Survey, Bull. 172, pp. 1-41.

Contains a list of titles of papers arranged alphabetically by authors' names and a subject index.

313. A preliminary report on the artesian basins of Wyoming, W. C. Knight.—Wyoming Univ. Expr. Sta., Bull. 45, pp. 1-251, pls. i-xiv, sections i-xv, geologic map.

314. The Laramie cement plaster, E. E. Slosson and R. B. Moudy.—Wyoming Univ., Agr. Coll., Tenth Ann. Rept., 18 pp., 1 pl.

Describes the occurrence of gypsum beds and the composition and manufacture of cement plaster.

315. Glacial sculpture of the Bighorn Mountains, Francois E. Matthes.—U. S. Geol. Survey, Twenty-first Ann. Rept., pt. ii, pp. 167-190, pl. xxiii, figs. 1-4; (abstract by F. E. Matthes), Science, new ser., vol. xi, p. 507, 1900.

Describes the glacial phenomena of the region and discusses their origin.

316. Jurassic rocks of southeastern Wyoming, W. C. Knight.—Geol. Soc. America, Bull., vol. xi, pp. 377-388, pl. 23; (abstract), Science, new ser., vol. xi, pp. 142-143 (½ p.).

Refers to previous investigation in this region, describes the character and distribution of the Jurassic strata. Includes sections of important localities and lists of fossils characterizing the Como and Shirley stages.

317. Description of a new species of Araucarioxylon from the cycad beds of the Freezeout Hills, Carbon County, Frank Hall Knowlton.—U. S. Geol. Survey, Twentieth Ann. Rept., pt. ii, pp. 418-419.

Describes *Araucarioxylon ? obscurum* Knowlton, n. sp.

318. Carnegie Museum paleontological expeditions of 1900, John B. Hatcher.—Science, new ser., vol. xii, pp. 718-720.

Contains notes on fossils collected in Wyoming and Nebraska.

319. Description of a new genus and twenty new species of fossil cycadean trunks from the Jurassic of Wyoming, Lester F. Ward.—Washington Acad. Sci., Proc., vol. 1, pp. 253-300, pls. xiv-xxi; (review), Am. Jour. Sci., 4th ser., vol. ix, pp. 384-386.

Describes the collections and the strata from which they were obtained and includes description of new genera and species.

320. The vertebral formula in Diplodocus (Marsh), W. J. Holland. —Science, new ser., vol. xi, pp. 816-818.

Describes material found in the fossil beds of Wyoming.

321. Vertebral formula of Diplodocus (Marsh), John B. Hatcher. —Science, new ser., vol. xii, pp. 828-830.

322. New fossil bird and fish remains from the middle Eocene of Wyoming, Charles R. Eastman.—Geol. Mag., Dec. IV, vol. vii, pp. 54-58, pl. iv.

Describes *Gallinuloides wyomingensis*, n. gen. et sp., and *Lepidosteus atrox* Leidy, and discusses their relationships.

323. The Wyoming fossil fields expedition of July, 1889, W. C. Knight.—Nat. Geog. Mag., vol. xi, pp. 449-465, 8 pls.

Describes character of expedition and general features of region traversed.

324. Fossil hunting in Wyoming, Elmer S. Riggs.—Science, new ser., vol. xi, pp. 233-234.

Refers to various collecting parties that have worked in the Jurassic strata in this State.

325. Character and relations of *Gallinuloides wyomingensis* Eastman, a fossil gallinaceous bird from the Green River shales of Wyoming, Frederic A. Lucas.—Harvard College Mus. Comp. Zool., Bull., vol. xxxvi, pp. 79-84, 1 pl.

326. The stratigraphy and invertebrate faunas of the Jurassic formation in the Freezeout Hills of Wyoming, W. N. Logan.—Kansas Univ. Quart., vol. ix, pp. 109-134, pls. xxv-xxxi, 5 figs.

Describes the character and occurrence of Carboniferous and Cretaceous strata, and the genera and species collected in the region.

327. New Jurassic vertebrates, W. C. Knight.—Am. Jour. Sci., 4th ser., vol. x, pp. 115-119, figs. A-D.

Describes *Plesiosaurus skirkeyensis* n. sp. and *Cimolosaurus laramiensis* n. sp. from Wyoming.

328. Fossil Lepidosteids from the Green River shales of Wyoming, Charles R. Eastman.—Harvard. College Mus. Comp. Zool., Bull., vol. xxxvi, pp. 67-75, pls. 1-2.

329. Flora of Montana formation, Frank Hall Knowlton.—U. S. Geol. Survey, Bull. 163, pp. 1-77, pls., i-xix.

Discusses the flora from this formation from Utah, Wyoming

and Montana; describes many genera and species. Includes notes by T. W. Stanton on certain plant-bearing strata along the Missouri River.

330. Floating sands and stones, Edmund Otis Hovey.—Science, new ser., vol. xi, pp. 912-913.

Contains notes on the occurrence of such phenomena in the Yellowstone Lake.

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331. Geology and water resources of the southern half of the Black Hills, N. H. Darton.—U. S. Geol. Survey, Twenty-first Ann. Rept., pt. 4, pp. 497-599, 55 pls., 28 figs.; (abstract), Jour. Geology, vol. 9, pp. 732-734.

Describes the character and occurrence of the Cambrian, Carboniferous, Juratrias, Cretaceous, Tertiary, and Pleistocene strata, the water and mineral resources and the soils of the region.

332. Alkali lakes and deposits, W. C. Knight and E. E. Slosson.—Wyoming Univ., Expr. Sta., Bull. 49, pp. 72-123, 1 map.

Describes the character, occurrence, and origin of the deposits of considerable depth.

333. The Sweetwater mining district, Fremont County, W. C. Knight.—Wyoming Univ., School of Mines, 35 pp., 1 map.

Describes the occurrence of gold in this district.

334. The iron mines of Hartville, H. Martyn Chance.—Am. Inst. Min. Eng., Trans., vol. 30, pp. 987-1003, 1 fig.

Describes the occurrence and character of the ore bodies and gives detailed descriptions of the mine workings.

335. Geology of the oil fields, W. C. Knight.—Wyoming Univ., School of Mines, pet. ser., Bull. 4, pp. 1-13.

Gives a brief article relative to the development of oil in the State and a table of formations.

336. The petroleum fields of Wyoming, W. C. Knight.—Eng. and Min. Jour., vol. 72, pp. 358-359, 628-630, 4 figs., map.

Describes the geology and character and occurrence of the oil in the several oil-bearing districts of the State.

337. The Dutton, Rattlesnake, Arago, Oil Mountain, and Powder River oil fields, W. C. Knight and E. E. Slosson.—Wyoming Univ., School of Mines, pet. ser., Bull. 4, 57 pp., 1 fig., 2 maps.

Describes the character and occurrence of the oil in the several districts.

338. Description of Bates Hole, W. C. Knight.—(abstracts), Jour. Geology, vol. 9, pp. 70-71; Geol. Soc. America, Bull., vol. 12, pp. 495-496.

Describes the physiographic and geologic features of the region.

339. Comparison of the stratigraphy of the Black Hills with that of the Front Range of the Rocky Mountains, N. H. Darton.—(abstract), Geol. Soc. America, Bull., vol. 12, p. 478; Science, new ser., vol. 13, p. 188.

340. Jurassic stratigraphy in southeastern Wyoming, Frederic B. Loomis.—Am. Mus. Nat. Hist., Bull., vol. 14, pp. 189-197, 2 pls.

Describes the geologic structure of the region and the character of the Jurassic and Cretaceous sediment of the region.

341. Note sur les phénomènes volcaniques Tertiares de la chaine d'Absaroka, Arnold Hague.—Internat. Cong. Geol. Compte Rendu, viii sess., pp. 364-365.

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342. Bibliography of North American geology, paleontology, petrology, and mineralogy for the years 1892 to 1900, inclusive, F. B. Weeks.—U. S. Geol. Survey, Bull. 188, 717 pp.

343. Index to North American geology, paleontology, petrology, and mineralogy for the years 1892 to 1900, inclusive, F. B. Weeks.—U. S. Geol. Survey, Bull. 189, 337 pp.

344. Bibliography and index to North American geology, paleontology, petrology, and mineralogy for the year 1901, F. B. Weeks.—U. S. Geol. Survey, Bull. 203, 144 pp.

345. Geology of the Patrick and Goshen Hole quadrangles in eastern Wyoming and western Nebraska, George I. Adams. —U. S. Geol. Survey, Water Supply and Irrigation Paper no. 70, 50 pp., 11 pls., 4 figs.

Describes the geologic structure and physiographic features.

346. A new form of calcite-sand crystal, Erwin Hinckley Barbour and Cassius A. Fisher.—Am. Jour. Sci., 4th ser., vol. 14, pp. 451-454, figs. 1-4.

Describes and figures material from South Dakota and Wyoming. Notes their stratigraphic range.

347. The Rocky Mountain coal fields, L. S. Storrs.—U. S. Geol. Survey, Twenty-second Ann. Rept., pt. 3, pp. 415-471, 2 pls., 1 fig.

Describes location, extent, geologic relations and development of coal areas in the Rocky Mountain region, the occurrence, thickness, and extent of coal beds, and the character, composition, and utilization of the coal and lignite.

348. Prospecting for oil in Wyoming, Arthur Lakes.—Mines and Minerals, vol. 23, pp. 99-100, 2 figs.

A description of the prospects in the country around Medicine Butte, and Red Mountain, Uinta County. Describes the Cretaceous and Tertiary strata of the region.

349. The Newcastle oil field, W. C. Knight and E. E. Slosson.—Wyoming Univ., School of Mines, pet. ser., Bull. 5, 25 pp.

Describes the topography, geology, and development of oil of this area.

350. The petroleum fields of Wyoming, III. The fields of Uinta County, W. C. Knight.—Eng. and Min. Jour., vol. 73, pp. 720-722, 4 figs.

Describes the topography, general geology, and occurrence of oil in Uinta County.

351. Occurrence of the rare metals in the Rambler mine, W. C. Knight.—Eng. and Min. Jour., vol. 73, pp. 696.

Contains notes on the occurrence of platinum and other rare metals.

352. A new occurrence of sperrylite, H. L. Wells and S. L. Penfield.—Am. Jour. Sci., 4th ser., vol. 13, pp. 95-96.

Describes occurrence in platiniferous copper ores from Wyoming.

353. Die Lagerstaetten titanhaltigen Eisenerzes im Laramie Range, Wyoming, Ver. Staaten, James Furman Kemp.—Zeitschr. F. prak. Geol., Jahrg. 13, pp. 71-80, 7 figs.

Describes the occurrence, character, and geologic relations of titaniferous magnetite deposits in Wyoming.

354. A deposit of titanic ore from Wyoming, Waldemar Lindgren. —(abstract), Science, new ser., vol. 16, pp. 984-985.

355. The Laramie Cretaceous of Wyoming, S. W. Williston.—Science, new ser., vol. 16, pp. 952-953.

Discusses age of Laramie deposits of Converse County, Wyoming, and gives notes on the fossils found in them.

356. Geologische Streifzuege durch die Praerien und Felsengebirge Nordamerikas, E. Fraas.—Wuerttemberg, Jahreshefte des Vereins fuer vaterlaendische Naturkunde, Stuttgart, Jahrg. 58, pp. LXV-LXVIII.

Contains observations on the Jurassic strata of Wyoming and their vertebrate fossils, and the Bad Lands of South Dakota.

357. The Laramie Plains Red Beds and their age, W. C. Knight.—Jour. Geology, vol. 10, pp. 412-422.

Reviews the literature of the subject, gives a detailed section in Red Mountain, and discusses the age of the Red Beds and their associated strata.

358. Notes on the Triassic and Jurassic strata of the Black Hills of South Dakota and Wyoming, Edmund Otis Hovey; (abstract), New York Acad. Sci., Annals, vol. 14, p. 152.

359. Description of a new species of Baena (*B. Hatcheri* from the Laramie beds of Wyoming), Oliver Perry Hay.—Carnegie Mus., Annals, vol. 1, no. 2, pp. 325-326, pl. xv.

360. Discovery of teeth in Baptanodon, an Ichthyosaurian from the Jurassic of Wyoming, Charles W. Gilmore.—Science, new ser., vol. 16, pp. 913-914.

361. Structure of the fore limb and manus of Brontosaurus, John B. Hatcher.—Carnegie Mus., Annals, vol. 1, no. 3, pp. 356-376, 14 figs., 2 pls., xix-xx.

362. The great Jurassic dinosaur, L. P. Gratacap.—Sci. Am., vol. 86, p. 5, 3 figs.

Describes the vertebrate animal life of the Jurassic and the occurrence of remains in Wyoming.

363. Toredo-like shell from the Laramie group, Robert Parr Whitfield.—Am. Mus. Nat. Hist., Bull., vol. 16, pp. 73-76, 2 pls., 1 fig.

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364. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1902, F. B. Weeks.—U. S. Geol. Survey, Bull. 221, 200 pp.

365. A report to the Governor of Wyoming by the State Geologist, Henry C. Beeler.—Daily Leader Publishing Company, 29 pp., Cheyenne, Wyoming.

366. Hartville folio, W. S. Tangier Smith.—U. S. Geol. Survey, Geol. Atlas, Hartville folio (No. 91).

Describes geographic and topographic features, character and occurrence of igneous rock and sedimentary deposits of Algonkian, Carboniferous, Juratrias, Cretaceous, Tertiary, and Quaternary systems, the geologic history and economic products.

367. The coal fields of southern Uinta County, W. C. Knight.—(abstract), Geol. Soc. America, Bull., vol. 13, pp. 542-544.

Describes briefly the Cretaceous strata of the region and gives chemical analyses of the coal.

368. Mineral resources of the Encampment region, Arthur C. Spencer.—U. S. Geol. Survey, Bull. 213, pp. 158-162.

Gives an account of the general geology of this region and the character and occurrence of the deposits of the copper ores.

369. The geologic features of the gold production of North America, Waldemar Lindgren.—Am. Inst. Min. Eng., Trans., vol. 33, pp. 790-845.

Discusses the occurrence and geologic relations of gold-bearing veins and deposits and production of gold in general and in the several gold-producing states, Alaska, Canada, and Mexico.

370. South Pass gold district, Fremont County, Henry C. Beeler.—Wyoming, Geologist's Office, 12 pp.

Includes a brief account of the geology of the region.

371. The Bonanza, Cottonwood, and Douglas oil fields, W. C. Knight and E. E. Slosson.—Wyoming Univ., School of Mines, pet. ser., Bull. 6, 30 pp.

Describes the geographic location and geologic structure of these fields, the character of the oil, and the possibilities of production.

372. Preliminary note upon the rare metals in the ore from the Rambler mine, Wyoming, Thomas Thornton Read.—Am. Jour. Sci., 4th ser., vol. 16, p. 268.

373. Platinum in copper ores in Wyoming, Samuel F. Emmons.—U. S. Geol. Survey, Bull. 213, pp. 94-97.

Gives a brief account of the topography and geology of the Medicine Bow Range in Wyoming and the occurrence of platinum in the copper ores of the New Rambler mine.

374. Leucite Hills of Wyoming, James Furman Kemp.—(abstract), Science, new ser., vol. 17, p. 505.

375. Leucite Hills of Wyoming, J. F. Kemp and W. C. Knight.—Geol. Soc. America, Bull., vol. 14, pp. 305-336, 10 pls.; Columbia Univ., Contr. from Geol. Dept., vol. 11, no. 94.

Reviews previous work, describes the geographic situation and general character of the region, the general geology, and in detail the twenty-two leucite hills with special reference to physiographic features and petrographic character.

376. Glaciation in the Bighorn Mountains, Rollin D. Salisbury and Eliot Blackwelder.—Jour. Geology, vol. 11, pp. 216-223, 2 figs.

Describes distribution of glaciers in the region, and character and occurrence and age of the glacial deposits.

377. Age of the Lance Creek (Ceratops) beds of Converse County, Wyoming, John B. Hatcher.—Am. Geologist, vol. 31, pp. 369-375.

378. Discovery of the remains of Astrodon (Pleurocoelus) in the Atlantosaurus beds of Wyoming, John B. Hatcher.—Carnegie Mus., Annals, vol. 2, pp. 9-14, 6 figs.

Includes with the description a discussion of the synonymy and the age of the beds in which it occurs.

379. The fresh-water Tertiaries at Green River, Wyoming, William Morris Davis.—(abstract), Science, new ser., vol. 17, pp. 220-221; Geol. Soc. America, Bull., vol. 14, p. 544, 1904.

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380. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1903, F. B. Weeks.—U. S. Geol. Survey, Bull. 240, 243 pp.

381. Catalogue and index of the publications of Hayden, King, Powell, and Wheeler surveys, Lawrence F. Schmeckebier. —U. S. Geol. Survey, Bull. 222, 208 pp.

Geological and geographical survey of the Territories, Geological exploration of the Fortieth Parallel, Geological and geographical surveys of the Rocky Mountain region, Geographical and geological surveys west of the One Hundredth Meridian.

382. Newcastle folio, Wyoming-South Dakota, N. H. Darton.—U. S. Geol. Survey, Geol. Atlas, Newcastle folio (no. 107).

Describes physiographic features, the geologic history and structure, the occurrence, character, and stratigraphic relations of Carboniferous, Triassic, Jurassic, and Cretaceous strata and Quaternary deposits, and the economic resources, artesian water, coal, petroleum, gypsum, etc.

383. Alkali deposits of Wyoming, Thomas Thornton Read.—Am. Geologist, vol. 34, pp. 164-169.

Describes their occurrence and discusses their origin.

384. Coal of the Bighorn Basin, in northwest Wyoming, Cassius A. Fisher.—U. S. Geol. Survey, Bull. 225, pp. 345-362.

Describes the geologic structure of the field, the character and occurrence of the coals and the mining operations.

385. The copper deposits of the Encampment district, Arthur C. Spencer.—U. S. Geol. Survey, Prof. Paper no. 25, 107 pp., 2 pls. (maps), 49 figs.

Describes the general geology and the character and occurrence of Mesozoic, Tertiary, pre-Cambrian, and igneous rocks, and copper and silver ore deposits, and discusses the origin of the copper ore bodies.

386. Grand Encampment copper district, Arthur Lakes.—Mines and Minerals, vol. 25, pp. 200-201, 2 figs.

Some notes on the geology, and a description of some of the development work.

387. Copper mining in Encampment, Wyoming, and Pearl, Colorado, districts, Thomas Thornton Read.—Mg. Rep., vol. 50, pp. 462-463.

Describes the general geology and the occurrence and the character of the copper ores.

388. The North Laramie Peak copper district, in Converse, Albany, and Laramie counties, Henry C. Beeler.—Wyoming, Geologist's Office, 16 pp., July 1.

Gives an account of the geology, copper ore deposits, and mining developments.

389. A brief review of the South Pass gold district, Fremont County, Henry C. Beeler.—Wyoming, Geologist's Office, 2d ed., 16 pp., July 15.

Includes a brief account of the geology of the district.

390. Gypsum deposits of Wyoming, W. C. Knight.—U. S. Geol. Survey, Bull. 223, pp. 79-85, 1 pl., 2 figs.

Describes character, extent, occurrence, economic development, and geologic relations of the gypsum deposits occurring in the "Red Beds" in Wyoming.

391. Platinum in the Rambler mine, James Furman Kemp.—Columbia Univ., Geol. Dept., Contr., vol. 11, no. 93, 7 pp., 1 pl., 1 fig., 1903; U. S. Geol. Survey, Mineral Resources for 1902, pp. 244-250, 1 pl., 1904.

Describes the occurrence of platinum in the ores of the Rambler mine, the geology of the vicinity, and the character and occurrence of the ore bodies.

392. Comparison of the stratigraphy of the Black Hills, Bighorn Mountains, and Rocky Mountain Front Range, N. H. Darton.—Geol. Soc. America, Bull., vol. 15, pp. 379-448, 14 pls.

Describes in detail the occurrence, character, etc., of geologic formations of Cambrian, Ordovician, Carboniferous, Triassic, Jurassic, and Cretaceous age, and discusses their relations and correlations.

393. An armadillo from the middle Eocene (Bridger) of North America, Henry F. Osborn.—Am. Mus. Nat. Hist., Bull., vol. 20, pp. 163-165.

394. The Atlantosaur and Titanotherium beds of Wyoming, Frederick B. Peck.—Wyoming Hist. and Geol. Soc., Proc. and Coll., vol. 8, pp. 25-41, 5 pls.

Describes a geologic excursion in this region. Includes observations on the geology and paleontology of Jurassic and Cretaceous strata.

395. The dinosaur Trachodon annectens, Frederic A. Lucas.—Smithsonian Misc. Coll. vol. 45, (Quart. Issue, vol. 1, pts. 3 and 4), pp. 317-320, 2 pls., 4 figs.

Describes the occurrence and characters of fossil remains and restorations.

396. Notice of some new reptiles from the upper Trias of Wyoming, W. C. Williston.—Jour. Geology, vol. 12, pp. 688-697, 6 figs.

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397. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1904, F. B. Weeks.—U. S. Geol. Survey, Bull. 271, 218 pp.

398. Aladdin folio, Wyoming-South Dakota, N. H. Darton and C. C. O'Harra.—U. S. Geol. Survey, Geol. Atlas, Aladdin folio (no. 128).

Describes the geography, occurrence, character, and relations of Cambrian, Ordovician, Carboniferous, Triassic (?), Jurassic, Cretaceous, Tertiary, and Quaternary formations and of igneous rocks, the geologic history and the economic products.

399. Geology and underground water resources of the central Great Plains, N. H. Darton.—U. S. Geol. Survey, Prof. Paper no. 32, 433 pp., 72 pls., 18 figs.

Describes the occurrence, character, and relations of Archean, Algonkian, Cambrian, Ordovician, Carboniferous, Triassic, Jurassic, Cretaceous strata and Tertiary deposits, the geologic history of the central Great Plains region, and their underground waters, and other economic resources of the area.

400. Sundance folio, Wyoming-South Dakota, N. H. Darton.—U. S. Geol. Survey, Geol. Atlas, Sundance folio (no. 127).

Describes the geography, occurrence, character, and relations of Algonkian, Ordovician, Carboniferous, Triassic (?), Jurassic, Cretaceous, Tertiary, and Quaternary formations and of igneous rocks, the geologic structure and history, and the economic resources of the area.

401. Geology and mineral resources of Wyoming, Henry C. Beeler.—Am. Min. Cong., Seventh Ann. Sess., Rept. of Proc., pp. 113-118.

A general account of the geology and mineral resources of Wyoming.

402. The bentonite deposits of Wyoming, Cassius A. Fisher.—U. S. Geol. Survey, Bull. 260, pp. 559-563. 1 fig.

Describes the physical properties, occurrence, and geologic relations of bentonite, a variety of clay.

403. Cement materials and industries of the United States, Edwin C. Eckel.—U. S. Geol. Survey, Bull. 243, 395 pp., 15 pls., 1 fig.

Describes the character and general occurrence of cement materials and their preparation, and in detail the occurrence, geologic relations, and character of limestones, shales and marls in the various States.

404. Notes on the baked clays and natural slags in eastern Wyoming, E. S. Bastin.—Jour. Geology, vol. 13, pp. 408-412.

Describes the occurrence and character of certain strata which have been modified by the burning of underlying lignite seams.

405. The coal of the Black Hills, Wyoming,.N. H. Darton.—U. S. Geol. Survey, Bull. 260, pp. 429-433.

Describes the character, occurrence, and geologic relations of coal beds, and the mining operations.

406. A preliminary report upon the coal resources of Wyoming, L. W. Trumbull.—Wyoming Univ., School of Mines, Bull. 7, 95 pp., 18 pls.

Includes a general account of the geology of the Cretaceous rocks of Wyoming.

407. Mining in the Grand Encampment district, Carbon and Albany counties, Henry C. Beeler.—Wyoming, Geologist's Office, 32 pp., 1 fig., Cheyenne, Sept. 1.

Includes a brief account of the geology and of the occurrence and character of the ore deposits.

408. The titaniferous magnetite in Wyoming, James Furman Kemp.—(abstracts), Am. Geologist, vol. 35, p. 64; Science, new ser., vol. 21, p. 67.

409. The Morrison formation and its relation with the Comanche series and the Dakota formation, Timothy W. Stanton.—Jour. Geology, vol. 13, pp. 657-669; (abstract), Science, new ser., vol. 22, pp. 755-756.

Discusses the occurrence and character of the Morrison formation in Wyoming and Colorado, its relations to associated formations, its correlation and age.

410. Two new Ceratopsia from the Laramie of Converse County, John B. Hatcher.—Am. Jour. Sci., 4th ser., vol. 20, pp. 413-419, 2 pls.

411. A new crocodile from the Jurassic of Wyoming, W. J. Holland. —Carnegie Mus. Annals, vol. 3, pp. 431-434, 1 pl., 1 fig.

412. A new armored dinosaur from the Upper Cretaceous of Wyoming, S. W. Williston.—Science, new ser., vol. 22, pp. 503-504.

413. The Hallopus, Baptanodon, and Atlantosaurus beds of Marsh, S. W. Williston.—Jour. Geology, vol. 13, pp. 338-350.

Discusses the age of these beds in the light of the evidence given by vertebrate fossil remains.

414. The occurrence of ichthyosaur-like remains in the Upper Cretaceous of Wyoming, John C. Merriam.—Science, new ser., vol. 22, pp. 640-641.

415. Hyopsodidae of the Wasatch and Wind River basins, Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 19, pp. 416-424, 8 figs.

416. Status of Mesozoic floras of the United States (second paper), Lester F. Ward.—U. S. Geol. Survey, Mon., vol. 48, pt. 1, text, 616 pp.; pt. 2, plates, 119 pls.

Describes the stratigraphic and paleontologic relations of the older Mesozoic of Arizona and gives an account of the status of knowledge of Triassic, Jurassic, and Cretaceous floras and a summary of geologic work upon these floras. Includes papers by Fontaine, Bibbins, and Wieland, giving systematic descriptions of species and notes upon the various floras.

417. A fossil star-fish from the Cretaceous of Wyoming, Stuart Weller.—Jour. Geology, vol. 13, pp. 238-256, 3 figs.

418. New locality for Triassic vertebrates in Wyoming, S. W. Williston.—(abstract), Science, new ser., vol. 21, pp. 297-298.

419. The fossil turtles of the Bridger Basin, Oliver Perry Hay.—Am. Geologist, vol. 35, pp. 327-342, 1 fig.

Describes the location and character of the Bridger beds and gives a general account of their chelonian fauna.

420. Igneous rocks of the Aladdin quadrangle, Wyoming-South Dakota, W. S. Tangier Smith.—U. S. Geol. Survey, Geol. Atlas, Aladdin folio (no. 128).

Describes the occurrence, character, and relations of Algonkian intrusive and Tertiary igneous rocks of this area.

421. Igneous rocks of the Sundance folio, Wyoming-South Dakota, W. S. Tangier Smith.—U. S. Geol. Survey, Geol. Atlas, Sundance folio (no. 127).

Describes the character, occurrence, and relations of Algonkian(?) and Tertiary intrusive rocks in this area.

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422. Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the years 1901 to 1905, inclusive, F. B. Weeks.—U. S. Geol. Survey, Bull. 301, 770 pp.

423. Mineral and allied resources of Albany County, Henry C. Beeler.—80 pp., illus., Laramie, Wyoming.

424. Description of the Bald Mountain and Dayton quadrangles, N. H. Darton.—U. S. Geol. Survey, Geol. Atlas, Bald Mountain-Dayton folio (no. 141), 15 pp., 6 figs., 7 maps, 1 columnar section sheet, 2 illus. sheets.

Describes the physiographic features, the occurrence, character, and relations of pre-Cambrian igneous rocks, and of Cambrian, Ordovician, Carboniferous, Triassic (?), Jurassic, Cretaceous, Tertiary, and Quaternary formations, the geologic structure and history, and the economic geology.

425. Geology and water resources of Bighorn Basin, Cassius A. Fisher.—U. S. Geol. Survey, Prof. Paper 53, 72 pp., 16 pls., 1 fig.

Describes the topography and drainage, the occurrence, character and relations of pre-Cambrian, Cambrian, Ordovician, Carboniferous, Triassic, Jurassic, Cretaceous, and Tertiary strata and Quaternary deposits, the geologic structure and history, and the water and mineral resources.

426. Mineral resources of the Bighorn Basin, Cassius A. Fisher.—U. S. Geol. Survey, Bull. 285, pp. 311-315.

Describes the occurrence of coal, bentonite, gypsum, and other mineral deposits in this part of Wyoming.

427. Geology of the Bighorn Mountains, N. H. Darton.—U. S. Geol. Survey, Prof. Paper 51, 129 pp., 47 pls., 14 figs.

Describes the topographic features, the occurrence, character relations, and fauna of pre-Cambrian, Cambrian, Ordovician, Carboniferous, Triassic, Jurassic, Cretaceous, Tertiary, and Quaternary formations, the glaciation, the geologic structure and history, and the economic resources.

428. Mineral resources of the Bighorn Mountain region, N. H. Darton.—U. S. Geol. Survey, Bull. 285, pp. 303-310.

Describes the occurrence and economic value of coal, gold, and other mineral deposits.

429. Description of Cloud Peak and Fort McKinney quadrangles, N. H. Darton.—U. S. Geol. Survey, Geol. Atlas,

Cloud Peak-Fort McKinney folio (no. 142), 16 pp., 6 figs., 7 maps, 1 columnar section sheet, 2 illus. sheets.

Describes the physiographic features, the occurrence, character, and relation of pre-Cambrian igneous rocks, and of Cambrian, Ordovician, Carboniferous, Triassic (?), Jurassic, Cretaceous, Tertiary, and Quaternary formations, the geologic structure and history, and the economic geology.

430. Geology of the Owl Creek Mountains, N. H. Darton.—59th Cong., 1st sess., S. Doc. 219, 1906, 48 pp., 19 pls., 1 fig.

Describes the topographic features, the character, occurrence, and relation of pre-Cambrian, Cambrian, Ordovician, Carboniferous, Triassic, Jurassic, Cretaceous, and Tertiary rocks, the geologic structure and history, and the mineral and water resources of the area.

Also notes on resources of adjoining region in the ceded portion of the Shoshone Indian Reservation.

431. Bentonite of the Laramie Basin, Claude E. Siebenthal.—U. S. Geol. Survey, Bull. 285, pp. 445-447.

Describes the physical characters, composition and uses of the clay and the geologic occurrences and the distribution of the deposits.

432. Les basins lignitiféres et houillers des Montagnes Rocheuses, Etienne A. Ritter.—Annales des Mines, 10e ser., t. 10, livr. 7, pp. 5-84.

An account of the coal beds of the Rocky Mountains.

433. Coal and oil in southern Uinta County, Arthur C. Veatch.—U. S. Geol. Survey, Bull. 285, pp. 331-353, 3 pls. (maps and sections).

Describes the stratigraphy and structure of the area and the occurrence, character, and geologic relations of coal beds and petroleum.

434. The copper mines of the United States in 1905, Walter H. Weed.—U. S. Geol. Survey, Bull. 285, pp. 93-124, 2 figs.

Describes the general condition of the copper industry in the United States, and the geology, occurrence, and other features of the copper ores of the several states.

435. Gypsum deposits of the Laramie district, Claude E. Siebenthal.—U. S. Geol. Survey, Bull. 285, pp. 404-405.

Describes the occurrence and character of the deposits of gypsum rock and gypsite.

436. Iron ores of the northwest United States and British Columbia, Charles Kenneth Leith.—U. S. Geol. Survey, Bull. 285, pp. 194-200.

Gives a summarized account of the iron ore deposits of Wyoming, Washington, British Columbia, Colorado, California, and Utah.

437. Petroleum and its products, Boverton Redwood.—
Gives an incomplete analysis of the Shannon oil.

438. Post-Pleistocene drainage modifications in the Black Hills and the Bighorn Mountains, George Rogers Mansfield.—Harvard College, Mus. Comp. Zool., Bull., vol. 49, (Geol. Ser., vol. 8, no. 3), pp. 59-87, 4 pls. (maps), 9 figs.

439. Glacial geology of the Bald Mountain and Dayton quadrangles, Rollin D. Salisbury.—U. S. Geol. Survey, Geol. Atlas, Bald Mountain-Dayton folio (no. 141), pp. 9-12.

440. Glacial geology of the Bighorn Mountains, Rollin D. Salisbury.—U. S. Geol. Survey, Prof. Paper 51, pp. 71-90, 11 pls., 9 figs.

441. Glacial geology of Cloud Peak and Fort McKinney quadrangles, Rollin D. Salisbury.—U. S. Geol. Survey, Geol. Atlas, Cloud Peak-Fort McKinney folio (no. 142) pp. 9-12.

442. The Miocene beds of western Nebraska and eastern Wyoming and their vertebrate faunae, O. A. Peterson.—Carnegie Mus. Annals, vol. 4, no. 1, pp. 21-72, 11 pls., 20 figs.

Describes the occurrence and relations of the Miocene formations in western Nebraska and eastern Wyoming and gives lists of the vertebrate fossils of each and the descriptions of the new forms.

443. Volcanic ash in the Bridger beds of Wyoming, William J. Sinclair.—Am. Mus. Nat. Hist., Bull., vol. 22, pp. 273-280, 4 pls.

Describes the general features of the geology, the lithologic and stratigraphic classification of the Bridger group, and the mode of accumulation of the Bridger beds.

444. Notes on the osteology of Baptanodon, Charles W. Gilmore.—Carnegie Mus. Mem., vol. 2, pp. 325-342, 3 pls., 13 figs.

With a description of a new species.

445. American amphicoelian crocodiles, S. W. Williston.—Jour. Geology, vol. 14, no. 1, pp. 1-17, 12 figs.

Reviews literature relating to American amphicoelian crocodiles, discusses their characters and relationships and describes *Coelosuchus reedii*, new genus and species.

446. Age and type localities of the supposed Jurassic fossils collected north of Fort Bridger, Wyoming, by Fremont in 1843, Arthur C. Veatch.—Am. Jour. Sci., 4th ser., vol. 21, pp. 457-460.

447. Fish remains in Ordovician rocks in Bighorn Mountains, Wyoming, with a résumé of Ordovician geology of the Northwest, N. H. Darton.—Geol. Soc. America, Bull., vol. 17, pp. 541-566, 7 pls., 6 figs.

Describes the general geology of the Bighorn uplift and more particularly the occurrence, character, relations, and faunal content of the Ordovician deposits of Wyoming, Montana, and Colorado.

448. The osteology of *Sinopa*, a credont mammal of the middle Eocene, William Diller Matthew.—U. S. Nat. Mus., Proc., vol. 30, pp. 203-233, 1 pl., 20 figs.

449. A fossil bird from the Wasatch, Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 22, pp. 481-482, 3 figs., December.

450. Hot Springs at Thermopolis, N. H. Darton.—Jour. Geology, vol. 14, no. 3, pp. 194-200, 4 figs.

Describes the geologic structure and hot springs deposits at this place, and the character and source of the water and the origin of its heat.

1907.

451. Description of the Devil's Tower quadrangle, N. H. Darton and C. C. O'Harra.—U. S. Geol. Survey, Geol. Atlas, Devil's Tower folio (no. 150), 9 pp., 3 maps, columnar section, structure sheets.

Describes the geography, the occurrence, character, and relations of Triassic, Jurassic, Cretaceous, and Tertiary strata, and igneous rocks. the geologic structure and history, the mineral resources and water supply.

452. Geology of a portion of southwestern Wyoming, Arthur C. Veatch.—U. S. Geol. Survey, Prof. Paper 56, 178 pp., figs., pls., maps, bibliography.

453. Mineral resources of the State of Wyoming.—141 pp. (Mineral Resources, pp. 57-88), 7 pls., Wyoming.

A book of reliable information published by authority of the Ninth Legislature.

454. Cement plaster industry in Wyoming, L. W. Trumbull.—Min. World, vol. 26, p. 387, 4 figs., March 23.

455. Portland cement materials in eastern Wyoming, Sydney H. Ball.—U. S. Geol. Survey, Bull. 315, pp. 232-244, 2 figs.

456. Coal fields of east-central Carbon County, Arthur C. Veatch.—U. S. Geol. Survey, Bull. 316, pp. 244-260, 1 pl.

457. Lander coal field, E. G. Woodruff.—U. S. Geol. Survey, Bull. 316, pp. 242-243.

458. Coal of the Laramie Basin, Claude E. Siebenthal.—U. S. Geol. Survey, Bull. 316, pp. 261-263.

459. Coal fields in a portion of central Uinta County, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 316, pp. 212-241, 1 pl.

460. The coal mining situation in northern Wyoming, Floyd W. Parsons.—Eng. and Min. Jour., vol. 84, pp. 930-935, 5 figs., Nov. 16.

Includes notes on the occurrence and character of the coals.

461. Lignite of northeastern Wyoming, Stewart Kennedy.—Mines and Minerals, vol. 27, no. 7, pp. 294-297, 6 figs., February.

462. Copper deposits of the Hartville Uplift, Sydney H. Ball.—U. S. Geol. Survey, Bull. 315, pp. 93-107.

463. Gold development in central Uinta County and other points along the Snake River, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 315, pp. 71-88, 2 pls.

464. Graphite in the Haystack Hills, Sydney H. Ball.—U. S. Geol. Survey, Bull. 315, pp. 426-428.

465. Titaniferous iron ore in Iron Mountain, Wyoming, Sydney H. Ball.—U. S. Geol. Survey, Bull. 315, pp. 206-212.

466. The Hartville iron ore range, S. H. Ball.—U. S. Geol. Survey, Bull. 315, pp. 190-205, 1 fig.

Describes the stratigraphy and geologic structure of the area, and the occurrence and the origin of the iron ores.

467. The iron ores and system of mining at Sunrise, Wyoming, B. W. Vallat.—Colorado Sci. Soc., Proc., vol. 8, pp. 315-322, 6 pls.

468. Mica in the Hartville Uplift, Sydney H. Ball.—U. S. Geol. Survey, Bull. 315, pp. 423-425.

469. Phosphate deposits in western United States, F. B. Weeks and W. F. Ferrier.—U. S. Geol. Survey, Bull. 315, pp. 449-462, 1 pl. 3 figs.; (abstract), Science, new ser., vol. 25, pp. 620-621, April 19.

470. Phosphate rock in Utah, Wyoming and Idaho, Charles Colcock Jones.—Eng. and Min. Jour., vol. 83, pp. 953-955, 6 figs., May 18.

471. Sulphur mining and refining in Wyoming, L. W. Trumbull.—Mines and Minerals, vol. 27, no. 7, pp. 314-316, 5 figs., February.

Includes notes on the origin and the occurrence of the sulphur.

472. Bighorn Mountains, N. H. Darton.—Nat. Geog. Mag., vol. 18, no. 6, pp. 355-364, 8 figs., June.

473. Origin and definition of the geologic term "Laramie", Arthur C. Veatch.—Jour. Geology, vol. 15, no. 6, pp. 526-549; (abstract), Am. Jour. Sci., 4th ser., vol. 24, pp. 18-22, July.

474. Red Beds in the Laramie Mountain region, N. H. Darton.—(abstract), Geol. Soc. America, Bull., vol. 17, pp. 724-725.

475. A new species of Baptanodon from the Jurassic of Wyoming, Charles W. Gilmore.—Am. Jour. Sci., 4th ser., vol. 23, pp. 193-198, 2 figs., March.

476. The Ceratopsia, John B. Hatcher, Othniel C. Marsh, and Richard Swan Lull.—U. S. Geol. Survey, Mon., vol. 49, 300 pp., 15 pls., 125 figs.

477. The skull of Paleorhinus, a Wyoming phytosaur, James H. Lees.—Jour. Geology, vol. 15, no. 2, pp. 121-151, 8 figs.

478. Origin of the Wasatch deposits, Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 23, pp. 356-364, 3 figs., May.

From a study of the character of the fauna and the lithologic characters of the geologic section concludes that the Wasatch beds of Wyoming are of flood-plain origin. Describes two new species of vertebrates from these beds.

479. Wasatch and Wind River rodents, Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 23, pp. 123-130, 7 figs., February.

Characterizes several new species of *Paramys* and one new species of *Sciuravus*.

1908.

480. Progress in Wyoming Mines in 1907, Henry C. Beeler.—Wyoming, Geologist's Office, 46 pp., illus.

481. The Diamondville coal field, A. T. Shurick.—Eng. and Min. Jour., vol. 85, pp. 116-118, 1 fig., January.

Includes notes on local geology.

482. The coals of southern Wyoming, Floyd W. Parsons.—Eng. and Min. Jour., vol. 85, pp. 118-120, 2 figs., January 11.

483. The South Pass gold mining district, Henry C. Beeler.—Min. World, vol. 29, pp. 953-955, December 26.

484. Sunrise iron mine, B. W. Vallat.—Mines and Minerals, vol. 28, no. 9, pp. 439-440, 2 figs., April.

A description of the ores.

485. Method of mining ore at Sunrise, B. W. Vallat.—Eng. and Min. Jour., vol. 85, pp. 399-403, 7 figs., February 22.

Includes notes on occurrence and character of iron ore.

486. Gas fields of the Bighorn Basin, Chester W. Washburne.—U. S. Geol. Survey, Bull. 340, pp. 348-363, 1 pl., 1 fig.

Describes the stratigraphy of the field structure, and the occurrence of natural gas.

487. The LaBarge oil field, Lincoln County, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 340, pp. 364-373, 1 pl.

Describes the stratigraphy and geologic structure of the field, and the occurrence, character, and origin of the oil.

488. Les gisements petroliferes de Wyoming, Soc. ind. min. St. Etienne, Compt. rend. mens., pp. 7-9. De la Condamine.

Notes on the oil deposits of Wyoming.

489. Phosphate deposits in western United States, F. B. Weeks.—U. S. Geol. Survey, Bull. 340, pp. 441-447.

490. Sulphur deposits at Cody, Elmer Grant Woodruff.—U. S. Geol. Survey, Bull. 340, pp. 451-456, 1 pl.

Describes the location and extent, the geologic relations, and the character and the genesis of the deposit.

491. Disruption of rock by lightning on one of the leucite hills in Wyoming, V. H. Barnett.—Jour. Geology, vol. 16, no. 6, pp. 568-571, 1 fig.

492. The fauna and stratigraphy of the Jefferson limestone in the northern Rocky Mountain region, E. M. Kindle.—Bulletins of Am. Paleontology, vol. 4, no. 20, 39 pp., 4 pls., June 5.

493. Paleozoic and Mesozoic of central Wyoming, N. H. Darton.—Geol. Soc. America, Bull. 19, pp. 403-470, 10 pls.

494. Pre-Cambrian rocks in southeastern Wyoming, Eliot Blackwelder.—Science, new ser., vol. 27, pp. 787-788, May 15.

495. Allosaurus, a carnivorous dinosaur, and its prey, William Diller Matthew.—Am. Mus. Jour., vol. 8, no. 1, pp. 3-5, 1 pl., January.

Describes the history of a skeleton and its mounting.

496. Untersuchungun fossiler Hoelzer aus dem Westen der Vereinigten Staaten von Nordamerika, Paul Platen.—Naturf. Gesellsch. Leipzig, Sitzungsb, Jg. 34, pp. 1-164, 3 pls.

Describes investigations upon fossil woods from the western states.

497. Description of Tertiary insects, T. D. A. Cockerell.—Am. Jour. Sci., 4th ser., vol. 25, pp. 51-52, 3 figs., January; pp. 227-232, 5 figs., March; pp. 309-312, 1 fig., April; vol. 26, pp. 69-75, 4 figs., July.

1909.

498. Bibliography of North American geology for 1906 and 1907, with subject index, F. B. Weeks and John M. Nickles.—U. S. Geol. Survey, Bull. 372, 317 pp., 1909.

499. Bibliography of North American geology for 1908, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 409, 148 pp.

500. Geology and mineral resources of the Laramie Basin, N. H. Darton and Claude E. Siebenthal.—U. S. Geol. Survey, Bull. 364, 81 pp., 8 pls., 1 fig.

Describes the geography and general geology, the occurrence, character, and relations of Carboniferous, Triassic, Jurassic, Cretaceous, and Tertiary formations, the geologic structure, the mineral resources, including coal, gypsum, bentonite, and others, and the underground waters.

501. The Wyoming asbestos deposits and mills, Arthur Lakes.—Min. Sci., vol. 60, pp. 388-391, 1 fig., October 28.

502. Coal fields in the southwest side of the Bighorn Basin, Elmer Grant Woodruff.—U. S. Geol. Survey, Bull. 341, pp. 200-219, 1 pl. (map).

Describes the stratigraphy and structure of the field and the occurrence, character, and mining of the coals.

503. The Glenrock coal field, E. Wesley Shaw.—U. S. Geol. Survey, Bull. 341, pp. 151-154, 1 pl. (map), 1 fig.

Describes the topography and the stratigraphy of the field, and the occurrence, character, and mining of the coals.

504. The eastern part of the Great Divide coal field, E. Eggleston Smith.—U. S. Geol. Survey, Bull. 341, pp. 220-242, 1 pl. (map).

Describes the general features of the field and the stratigraphy and structure, occurrence and character of the coal beds, and the quality and composition of the coals.

505. The western part of the Little Snake River coal field, Max W Ball.—U. S. Geol. Survey, Bull. 341, pp. 243-255, 1 pl (map).

Describes the geography, stratigraphy and structure of the field and the physical properties and composition of the coals.

506. The northern part of the Rock Springs coal field, Sweetwater County, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 341, pp. 256-282, 2 pls. (maps).

Describes the topographic features, stratigraphy, and geologic structure of the field, the quality and composition of the coals, and the mining developments.

507. Natural gas in Colorado and Wyoming, Arthur Lakes.—Min. Sci., vol. 60, p. 225, 1 fig., September 9.

508. The phosphate deposits of the United States, Frank B. Van Horn.—U. S. Geol. Survey, Bull. 394, pp. 157-171; Rept. Nat. Conservation Comm. (60th Cong., 2d sess., S. Doc. 676), vol. 3, pp. 558-570; (abstract), Min. and Sci. Press, vol. 99, pp. 88-90, 2 figs., July 17; Mineral Resources of U. S., 1908: Phosphate rock.

509. Sulphur deposits at Thermopolis, Wyoming, Elmer Grant Woodruff.—U. S. Geol. Survey, Bull. 380, pp. 373-380, 1 fig.

Describes the location, geologic relations and structure, and the occurrence and origin of the sulphur ore.

510. Geology and water resources of the northern portion of the Black Hills and adjoining portions in South Dakota and Wyoming, N. H. Darton.—U. S. Geol. Survey, Prof. Paper 65, 105 pp., 24 pls., 15 figs.

511. Cenozoic history of the Laramie region, Eliot Blackwelder. —Jour. Geology, vol. 17, no. 5, pp. 429-444, 7 figs.

512. The age and stratigraphic relations of the "Ceratops beds" of Wyoming and Montana, Timothy W. Stanton.—Washington Acad. Sci., Proc., vol. 11, no. 3, pp. 239-293, August 14.

Describes the distribution, relations, and faunal character of "Ceratops beds", and considers them to be of Cretaceous age, while the Fort Union formation, properly restricted, is of early Eocene age.

513. The stratigraphic relations and paleontology of the "Hell Creek beds", "Ceratops beds", and equivalents, and their reference to the Fort Union formation, Frank Hall Knowlton.—Washington Acad. Sci., Proc., vol. 11, no. 3, pp. 179-238.

Concludes that the beds named should be referred to the Fort Union formation and are Eocene in age.

514. Loup Fork beds of eastern Wyoming, Elmer S. Riggs.—(abstract), Science, new ser., vol. 29, p. 196, January 29.

515. The Washakie, a volcanic ash formation, W. J. Sinclair.—Am. Mus. Nat. Hist., Bull., vol. 26, pp. 25-27.

Describes the materials composing the Washakie formation of southern Wyoming and shows that they differ from those of the Bridger formation, and concludes that the two formations are not contemporaneous.

516. Faunal horizons of the Washakie formation of southern Wyoming, Walter Granger.—Am. Mus. Nat. Hist., Bull. vol. 26, pp. 13-23, 5 pls., 2 figs.

Gives an historical review of previous work on the Washakie formation and the views entertained as to its age, relations, and deposition, describes the topography and geology with sections, and indicates the faunal horizons.

517. On a skull of Apternodus and a skeleton of a new artiodactyl from the lower Oligocene of Wyoming, William Diller Matthew.—(abstract), Science, new ser., vol. 29, p. 196, January 29.

518. The Carnivora and Insectivora of the Bridger Basin, middle Eocene, W. D. Matthew.—Am. Mus. Nat. Hist., Mem., vol. 9, pt. 6, pp. 289-567, 11 pls., 118 figs.

519. Eocene fossils from Green River, T. D. A. Cockerell.—Am. Jour. Sci., 4th ser., vol. 28, pp. 447-448, 2 figs., November.

Describes a fruit *Firmianites aterrimus* new gen. and sp., and an insect *Syntomostylus? fortis* new sp.

520. The fossil fields of Wyoming along the Union Pacific Railway, Members of the Union Pacific Expedition.—Passenger Dept., U. P. R. R., 61 pp., illus., Omaha, Nebr.

Includes reports bearing on the geology and physiography and vertebrate paleontology of Wyoming, by W. H. Reed, J. A. Yates, J. E. Todd, A. R. Crook, H. L. T. Skinner, G. C. Broadhead, and George L. Collie.

521. The epidermis of an iguanodont, Henry F. Osborn.—Science, new ser., vol. 29, May 14.

Describes a specimen of *Trachodon annectens* from Converse County, Wyoming, preserving part of the epidermal covering.

522. The new American Jurassic crinoid, Frank Springer.—U. S. Nat. Mus., Proc., vol. 36, pp. 179-190, 1 pl.

523. Expedition to the Laramie beds of Converse County, Charles

H. Sternberg.—Kansas Acad. Sci., Trans., vol. 22, pp. 113-116.

Describes the beds and gives notes upon the fossils collected from them.

524. A new trachodon from the Laramie beds of Converse County, Charles H. Sternberg.—(abstract), Science, new ser., vol. 29, pp. 753-754, May 7.

525. A new rhynchocephalian reptile from the Jurassic of Wyoming, with notes on the fauna of "Quarry 9", Charles W. Gilmore.—U. S. Nat. Mus., Proc., vol. 37, pp. 35-42, 1 pt., 3 figs.

Describes *Opisthias rarus* n. gen. and n. sp. from Como Bluff, Albany County, and gives list of vertebrate fossils from the same locality and notes upon the same.

526. Die fossilen Waelder am Amethyst-Mount im Yellowstone National Park und die mikroskopische Untersuchung ihrer Hoelzer, Paul Platen.—Prometheus, Jahrg. 20, pp. 241-246, 6 figs., January 20.

Describes fossil wood from the Yellowstone National Park. Sections illustrating structure.

527. Radioactivity of the thermal waters of Yellowstone National Park, Herman Schlundt and Richard B. Moore.—U. S. Geol. Survey, Bull. 395, 35 pp., 4 pls., 7 figs.

1910.

528. Bibliography of North American geology for 1909, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 444, 174 pp.

529. Laramie and Sherman quadrangles, N. H. Darton and E. Blackwelder and C. E. Siebenthal.—U. S. Geol. Survey, Geol. Atlas, Laramie-Sherman folio (no. 173), Library ed., 17 pp., 8 pls. (maps and illus. sheets), 3 figs.; field ed., 128 pp., 8 folded maps, 8 pls., 3 figs.

Describes the geography, the occurrence, character and relations of the pre-Cambrian, Carboniferous, Triassic, Jurassic, Cretaceous, Tertiary, and Quaternary sediments, the structure and geologic history, the mineral resources and the underground waters.

530. Asbestos in Wyoming, Henry C. Beeler.—Eng. and Min. Jour., vol. 90, p. 955, 1 fig., November 12.

Describes the occurrence and character of asbestos near Casper, Natrona County.

531. The asbestos industry in central Wyoming, F. H. Barrow.—Eng. and Min. Jour., vol. 90, p. 559, 1 fig., September 17.

532. Coal fields of the Bighorn Basin, Wyoming, and of Bridger, Montana, Chester W. Washburne.—U. S. Geol. Survey, Bull. 341, pp. 165-169, 1 pl. (map).

Describes the general features of the fields, the stratigraphy of the coal beds, and the distribution, relations, and character of the coals.

533. The coal field in the southeastern part of the Bighorn Basin, Elmer Grant Woodruff.—U. S. Geol. Survey, Bull. 381, pp. 170-185, 1 pl. (map).

Describes the general features of the field, the stratigraphy and structure, and the occurrence, development, and character of the coal.

534. Buffalo coal field, Hoyt S. Gale and Carroll H. Wegemann.—U. S. Geol. Survey, Bull. 381, pp. 137-169, 3 pls. (maps and sections).

Describes the topography, stratigraphy, and rock structure, the occurrence and character of the coal beds, and the quality and physical properties of the coal.

535. Weathering of coal in the arid region of Green River Basin, Sweetwater County, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 381, pp. 282-296; (abstract by A. R. Schultz), Science, new ser., vol. 31, pp. 759-760, May 13.

536. The eastern part of the Little Snake River coal field, Max W. Ball and Eugene Stebinger.—U. S. Geol. Survey, Bull. 381, pp. 186-213, 1 pl. (map).

Describes the general features of the area, the geologic structure and stratigraphy, the occurrence, character, and development of the coal fields, and the composition of the coal.

537. The Powder River coal field, adjacent to the Burlington Railroad, Ralph W. Stone and Charles T. Lupton.—U. S. Geol. Survey, Bull. 381, pp. 115-136, 1 pl. (map).

Describes the general features of the field, the general geology, the occurrence, character, and relations of the coal beds, and the properties and utilization of the coal.

538. The southern part of the Rock Springs coal field, Sweetwater County, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 381, pp. 214-281, 2 pls. (maps).

Describes the topographic features, the geologic structure, the geologic history, the occurrence, character and relations of Cretaceous and Tertiary formations, the coal beds, the physical and chemical properties of the coal and the economic developments.

539. The Sheridan coal field, Joseph A. Taff.—U. S. Geol. Survey, Bull. 341, pp. 123-150, 1 pl. (map), 1 fig.

Describes briefly the general features of the field, and the stratigraphy of the coal-bearing rocks, and in more detail, the occurrence, character, and mining of the coals.

540. Preliminary report on the phosphate deposits in southeastern Idaho and adjacent parts of Wyoming and Utah, Hoyt S. Gale and Ralph W. Richards.—U. S. Geol. Survey, Bull. 430, pp. 457-535, 10 pls., 3 figs.

Describes the nature, origin, and composition of the phosphate rock, the general geology of the region, the character, occurrence, and relations of Carboniferous, Triassic, Jurassic, Cretaceous, and Tertiary formations, and the geologic structure, and gives a detailed account of the local geology, distribution, area, tonnage, etc., of phosphate deposits.

541. A review of the phosphate fields of Utah, Idaho, and Wyoming, with special reference to the thickness and quality of the deposits, W. H. Waggaman.—U. S. Dept. Agr., Bur. Soils, Bull. 69, 48 pp., 1 map.

542. Western phosphate mines, Morse S. Duffield.—Mines and Methods, vol. 2, no. 1, pp. 9-13, 6 figs., September.

Includes notes on the geology of the phosphate area in Utah, Wyoming, and Idaho.

543. The salt resources of the Wyoming border, with notes on the geology, Carpel L. Breger.—U. S. Geol. Survey, Bull. 430, pp. 555-569, 1 fig.

544. Deposits of sodium salts in Wyoming, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 430, pp. 570-589, 2 figs.

Describes the origin, distribution, utilization, etc., of alkali deposits.

545. The physiography of the Bishop conglomerate, southwestern Wyoming, John Lyon Rich.—Jour. Geology, vol. 18, no. 7, pp. 601-632, 10 figs.

546. Fox Hills sandstone and Lance formation ("Ceratops beds") in South Dakota and eastern Wyoming, Timothy W. Stanton.—Am. Jour. Sci., 4th ser., vol. 30, pp. 172-188, September; (abstract by T. W. Stanton), Science, new ser., vol. 32, pp. 63-64, July 8.

Discusses the stratigraphic horizons and relations of these formations.

547. On the skull of Apternodus and the skeleton of a new artiodactyl, William Diller Matthew.—Am. Mus. Nat. Hist., Bull., vol. 28, pp. 33-42. 1 pl., 5 figs.

Describes a skull of Apternodus and an artiodactyl *Eotylopus reedii* n. gen. and n. sp. from Oligocene beds of Wyoming.

548. Two new araucarias from the western Cretaceous, George R. Wieland.—South Dakota Geol. Survey, Bull. 4, (Rept., State Geologist, 1908), pp. 77-81, 2 figs.

Describes *Araucaria hespera* n. sp., from the Cretaceous of South Dakota and *Araucaria hatcheri* n. sp. from the Laramie Cretaceous of Converse County, Wyoming.

549. Description of a collection of fossil fishes from the bituminous shales at Riacho Doce, State of Algoas, Brazil, David Starr Jordan.—Carnegie Mus. Annals, vol. 7, no. 1, pp. 23-44, 9 pls., November.

Includes figures of *Diplomystus dentatus* Cope from the Eocene (Green River shales) at Fossil Station, Wyoming.

550. *Leidyosuchus sternbergii*, a new species of crocodile from the Ceratops beds of Wyoming, Charles W. Gilmore.—U. S. Nat. Mus., Proc., vol. 38, pp. 485-502, 7 pls., 2 figs.

551. Description of fossil plants from the Mesozoic and Cenozoic of North America. I. 1. Two new fossil chain-ferns (Woodwardia), from Oregon and Wyoming. 2. A new name for *Kavallia tenuifolia* Swartz, as identified by Dawson, and *Asplenium tenerum* Lesquereux; Frank Hall Knowlton.—Smithsonian Misc. Coll., vol. 52 (Quart. Issue, vol. 5, pt. 4), pp. 489-495, 2 pls.

552. The fauna of the phosphate beds of the Park City formation in Idaho, Wyoming, and Utah, George H. Girty.—U. S. Geol. Survey, Bull. 436, 82 pp., 7 pls.

553. A new genus of peccaries, Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 30, pp. 381-384, 1 fig., December.

Describes *Pediohyus ferus* n. gen. and n. sp. from the upper Harrison beds of Converse County.

554. Tertiary faunal horizons in the Wind River Basin, with description of new Eocene mammals, Walter Granger.—Am. Mus. Nat. Hist., Bull., vol. 28, pp. 235-251, 5 pls., 5 figs.

1911.

555. Bibliography of North American geology for 1910, John M. Nickles.—U. S. Geol. Survey, Bull. 495, 179 pp.

556. Mineral resources of Wyoming, C. E. Jamison.—Wyoming, Geologist's Office, Ser. B, Bull. 1, pp. 1-40.

557. Asbestos deposits of Casper Mountain, Wyoming, Henry C. Beeler.—Colorado School of Mines Mag., vol. 1, no. 10, pp. 5-9; no. 11, pp. 5-9, 4 figs., July and August.

558. The types, modes of occurrence and important deposits of asbestos in the United States, Joseph Silas Diller.—U. S. Geol. Survey, Bull. 470, pp. 505-524, 2 figs. (maps).

559. The types and modes of occurrence of asbestos in the United States, Joseph Silas Diller.—Canadian Min. Inst., Quart. Bull., no. 13, pp. 45-58, February.

560. A new synthesis and new occurrences of covellite, Austin F. Rogers.—School of Mines Quart., vol. 32, no. 4, pp. 298-304, 3 figs., July.

Describes the character of covellite from Kansas, Wyoming (Rambler mine), Nevada, Colorado, and California localities, and describes its occurrence and origin.

561. Sunlight mining district, J. H. East, jr.—Eng. and Min. Jour., vol. 91, pp. 1155-1156, June 10.

Describes the local geology and the character and occurrence of the ores containing copper, silver, and gold.

562. Natural gas in the Western States, Arthur Lakes.—Min. Sci., vol. 63, pp. 61-62, 2 figs., January 19.

563. The oil fields of Byron, Wyoming, H. E. Havenor.—Salt Lake Min. Rev., vol. 12, no. 19, pp. 15-16, 4 figs., January 15.

564. Geology and mineral resources of a portion of Fremont County, C. E. Jamison.—Wyoming, Geologist's Office, Ser. B, Bull. 2, 90 pp., 14 pls., map.

565. The Lander oil field, Elmer Grant Woodruff.—U. S. Geol. Survey, Bull. 452, pp. 7-36, 6 pls., 1 fig.

Describes the stratigraphy and geologic structure of the field, the occurrence and character of the oil, and the economic developments.

566. Origin of the Lander oil and western phosphate, Carpel L. Breger.—Min. and Eng. World, vol. 35, pp. 631-633, 1 fig., September 30.

567. The Salt Creek oil field, Carroll H. Wegemann.—U. S. Geol. Survey, Bull. 452, pp. 37-83, 6 pls.

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568. The geology of the Wyoming petroleum deposits, Arthur Lakes.—Min. Sci., vol. 63, pp. 414-416, 3 figs., April 20.

569. A reconnaissance of the phosphate deposits in western Wyoming, Eliot Blackwelder.—U. S. Geol. Survey, Bull. 470, pp. 452-481, 1 pl. (map), 7 figs

570. Further data on the stratigraphic position of the Lance ("Ceratops beds"), Frank Hall Knowlton.—Jour. Geology, vol. 19, no. 4, pp. 358-376, 3 figs.; Washington Acad. Sci., Jour., vol. 1, no. 10, pp. 294-296, December 19.

571. Tertiary formations of northwestern Wyoming, William J. Sinclair.—(abstract), Science, new ser., vol. 33, p. 905, June 9.

572. Eocene and Oligocene of the Wind River and Bighorn basins, W. J. Sinclair and Walter Granger.—Am. Mus. Nat. Hist., Bull., vol. 30, pp. 83-117, 6 pls., 4 figs. (maps and sections); (abstract), Geol. Soc. America, Bull., vol. 22, no. 4, pp. 722-723, December 15.

Describes the stratigraphy and geologic history of the region and the characters, relations, source of materials, and mode of deposition of the formations.

573. The camels of the Harrison bed, with three new species, Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 31, pp. 65-70, 3 figs., January.

574. Still in the Laramie country, Converse County, Charles H. Sternberg.—Kansas Acad. Sci., Trans., vol. 23-24, pp. 219-223.

Gives notes on the occurrence and character of vertebrate and other fossils.

575. Description of two new fossil figs from Wyoming and Montana, Frank Hall Knowlton.—Torrey Bot. Club, Bull., vol. 38, pp. 389-392, 4 figs., August.

Describes *Ficus ceratops* n. sp. from the Lance formation of Converse County, Wyoming, and *Ficus russelli* n. sp. from the Lance formation of Forsyth, Montana.

576. A new specimen of the four-toed horse; earliest known ancestor of the modern horse, a small four-toed Eohippus, discovered in the bad lands of Wyoming, Walter Granger.—Am. Mus. Jour., vol. 11, no. 3, pp. 85-88, 5 figs., March.

577. Origin of the thermal waters in the Yellowstone National Park, Arnold Hague.—Geol. Soc. America, Bull., vol. 22,

no. 1, pp. 103-122, March; Science, new ser., vol. 33, pp. 553-568, April 14.

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578. Bibliography of North American geology for 1911, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 524, 162 pp.

579. Coal near the Black Hills, Wyoming-South Dakota, Ralph W. Stone.—U. S. Geol. Survey, Bull. 449, 66 pp., 7 pls., 8 figs.; (abstract), Washington Acad. Sci., Jour., vol. 2, no. 15, pp. 389-390, September 19.

580. The Cambria coal field in Wyoming, Jesse Simmons.—Coal Age, vol. 1, pp. 766-768, 2 figs., March 23.

581. The Little Powder River coal field, Campbell County, John A. Davis.—U. S. Geol. Survey, Bull. 471, pp. 423-440, 4 pls. (maps and sections).

582. The Lost Spring coal field, Converse County, Dean E. Winchester.—U. S. Geol. Survey, Bull. 471, pp. 472-515, 5 pls. (maps and sections).

583. The Sheridan coal field, Jesse Simmons.—Coal Age, vol. 1, pp. 866-868, 4 figs., April 13.

584. The Sussex coal field, Johnson, Natrona, and Converse Counties, Carroll H. Wegemann.—U. S. Geol. Survey, Bull. 471, pp. 441-471, 9 pls. (map and sections).

585. Coals of the Wind River region, Fremont and Natrona counties, E. G. Woodruff and Dean E. Winchester.—U. S. Geol. Survey, Bull. 471, pp. 516-564, 9 pls. (maps and sections), 2 figs.

586. A new chlorite from northern Wyoming, John E. Wolff.—Am. Jour. Sci., 4th ser., vol. 34, pp. 475-476, November.

587. Lorandite from the Rambler mine, Austin F. Rogers.—Am. Jour. Sci., 4th ser., vol. 33, pp. 105-106, 2 figs., February.

588. Nitrate deposits, Hoyt S. Gale.—U. S. Geol. Survey, Bull. 523, 36 pp., 2 pls., 2 figs.

A general review of the occurrence and origin of nitrate deposits.

589. The Douglas oil field, Converse County, C. E. Jamison.—Wyoming, Geologist's Office, Ser. B, Bull. 3, 30 pp., 8 pls. (incl. maps and sections).

590. Muddy Creek oil field, C. E. Jamison.—Wyoming, Geologist's Office, Ser. B, Bull. 3, 50 pp., 8 pls.

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592. The Salt Creek oil field, Natrona County, C. E. Jamison.—Wyoming, Geologist's Office, Ser. B, Bull. 4, 75 pp., 16 pls., 1 map.

593. The Spring Valley oil field in southwestern Wyoming, F. J. H. Merrill.—Min. and Sci. Press, vol. 104, pp. 163-165, 2 figs., January 27.

594. Potash-bearing rocks of the Leucite Hills, Sweetwater County, Alfred R. Schultz and Whitman Cross.—U. S. Geol. Survey, Bull. 512, 39 pp., 1 pl., 9 figs.; (abstract), Washington Acad. Sci., Jour., vol. 2, no. 6, p. 159, March 19.

Describes the character, composition, occurrence, and geologic relations of the rocks, and in detail the different exposures.

595. The Gros Ventre slide, an active earth flow, Eliot Blackwelder.—Geol. Soc. America, Bull., vol. 23, no. 4, pp. 487-492, 5 pls., 2 figs., October 21; (abstract), Geol. Soc. America, Bull., vol. 23, no. 4, p. 739, December 17.

Describes a landslide in western Wyoming south of Yellowstone National Park characterized by continuous slow motion for several years.

596. Notes on the Cenozoic history of central Wyoming, Charles L. Baker.—(abstract), Geol. Soc. America, Bull., vol. 23, no. 1, pp. 73-74, March 14.

597. The Cenozoic history of the Wind River Mountains, Lewis G. Westgate and E. B. Branson.—(abstract), Science, new ser., vol. 35, p. 318, February 23; Geol. Soc. America, Bull., vol. 23, no. 4, p. 739, December 17.

598. Some glacial deposits east of Cody and their relations to the Pleistocene erosional history of the Rocky Mountain region, William J. Sinclair.—(abstract with discussion by W. W. Atwood), Geol. Soc. America, Bull., vol. 23, no. 4, p. 731, December 17.

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600. Some small natural bridges in eastern Wyoming, V. H. Barnett.—Jour. Geology, vol. 20, no. 5, pp. 438-441, 3 figs., July-August.

601. Notes on the Tertiary deposits on the Bighorn Basin, William J. Sinclair and Walter Granger.—Am. Mus. Nat. Hist., Bull., vol. 31, pp. 57-67, 2 pls., 1 fig., 1 map.

602. Integument of the Iguanodont dinosaur Trachodon, Henry F. Osborn.—Am. Mus. Nat. Hist., Mem., new ser., vol. 1, pt. 2, pp. 31-54, 6 pls., 13 figs., June.

603. An American Jurassic frog, Roy L. Moodie.—Am. Jour. Sci., 4th ser., vol. 34, pp. 286-288, September.

604. *Muraenosaurus? reedii* sp. nov. and *Tricleidus? laramiensis* Knight, American Jurassic plesiosaurs, Maurice G. Mehl. —Jour. Geology, vol. 20, no. 4, pp. 344-352, 3 figs., May-June.

605. Geysers, Walter H. Weed.—U. S. Dept. Interior, 29 pp., 22 figs.

606. Silica and lime deposition, N. H. Darton.—Geologische Charakterbilder (H. Stille), Heft 12, 6 pls. and explanatory text.

Gives reproduction of photographs taken in Yellowstone National Park, Mono Lake, California, and Cataract Canyon, Ariz., illustrating sinter deposits.

607. Geological history of the Yellowstone National Park, Arnold Hague.—U. S. Dept. Interior, 24 pp., 9 figs.

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608. Bibliography of North American geology for 1912, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 545, 192 pp.

609. Mining laws, Federal and State, L. W. Trumbull.—Wyoming, Geologist's Office, Bull. 6, 44 pp.

610. The Barber coal field, Johnson County, Carroll H. Wegemann.—U. S. Geol. Survey, Bull. 531, pp. 262-284, 3 pls. (maps and sections).

611. The Byron oil field, A. P. Rogers.—Eng. and Min. Jour., vol. 96, p. 869, November 8.

612. An occurrence of petroleum near Cody, D. F. Hewett.—(abstract), Washington Acad. Sci., Jour., vol. 3, no. 2, pp. 51-52, January.

613. Report on school sections, Oregon Basin, Dr. Cesare Porro. —Casper, November 10.

614. Prospective oil fields at Upton, Weston County, Buck Creek, Niobrara County, Rattlesnake Mountains, Natrona County, LaBarge, Lincoln County, L. W. Trumbull.—Wyoming, Geologist's Office, Ser. B, Bull. 5, 15 pp., 4 sketch maps.

615. The discovery and opening of a new phosphate field in the United States, Charles Colcock Jones.—Am. Inst. Min. Eng., Bull. 82, pp. 2411-2435, 13 figs., October.

Describes the phosphate deposits in northeastern Utah, southeastern Idaho, and western Wyoming.

616. Sulphur deposits of Sunlight Basin, D. F. Hewett.—U. S. Geol. Survey, Bull. 530, pp. 350-362, 1 pl. (sketch map), 1 fig. (index map).

617. The later Cenozoic history of the Wind River Mountains, Lewis G. Westgate and E. B. Branson.—Jour. Geology, vol. 21, no. 2, pp. 142-159, 9 figs., February-March.

618. Expeditions to the Miocene of Wyoming and the chalk beds of Kansas, Charles H. Sternberg.—Kansas Acad. Sci., Trans., vol. 25, pp. 45-49, 1 fig., 1913.

619. Origin of the Bighorn dolomite of Wyoming, Eliot Blackwelder,—Geol. Soc. America, Bull., vol. 24, no. 4, pp. 607-624, 8 pls., 1 fig., December 22.

620. Angistorhinus, a new genus of Phytosaur from the Trias of Wyoming, Maurice G. Mehl.—Jour. Geology, vol. 21, no. 2, pp. 186-191, 1 fig., February-March.

621. The skull of Bathyopsis, Wind River uintathere, Henry F. Osborn,—Am. Mus. Nat. Hist., Bull., vol. 32, pp. 417-420, 3 pls., 4 figs.

622. Coralline algae in an Ordovician dolomite, Eliot Blackwelder.—(abstract), Geol. Soc. America, Bull., vol. 24, no. 1, pp. 115, March 24.

623. A new dinosaur from the Lance formation of Wyoming, Charles W. Gilmore.—Smithsonian Misc. Coll., vol. 61, no. 5, 5 pp., 5 figs., May 24.

Describes *Thescelosaurus neglectus* n. gen. and n. sp.

624. Eomoropus, an American Eocene chalicothere, Henry F. Osborn.—Am. Mus. Nat. Hist., Bull., vol. 32, pp. 261-274, 11 figs.

625. Fossil feathers and some heretofore undescribed fossil birds, Robert Wilson Shufeldt.—Jour. Geology, vol. 21, no. 7, pp. 628-652, 12 figs., October-November.

626. Description of a new fossil fern of the genus Gleichenia from the upper Cretaceous of Wyoming, Frank Hall Knowlton. —U. S. Nat. Mus., Proc., vol. 45, pp. 555-558, 1 pl.

627. New or little known Paleozoic faunas from Wyoming and Idaho, Eliot Blackwelder.—Am. Jour. Sci., 4th ser., vol. 36, pp. 174-179, August.

628. Lower Eocene titanotheres, genera Lambdortherium, Eotitanops, Henry F. Osborn.—Am. Mus. Nat. Hist., Bull., vol. 32, pp. 407-415, 9 figs.

629. Description of a new species of Testudo, and of a remarkable specimen of *Stylemys nebrascensis*, from the Oligocene of Wyoming, Lawrence M. Lambe.—Ottawa Naturalist, vol. 37, pp. 57-63, 4 pls., 1 fig., August-September.

630. The Yellowstone National Park, N. M. Fenneman.—Jour. Geology, vol. 11, pp. 314-320, 2 figs., June.

631. Le Parc National du Yellowstone; etude morphologique, Emm. de Martonne.—Annales de Géographie, Ann. 22, pp. 134-148, 2 pls., 5 figs., March 15.

Describes physiographic features of Yellowstone National Park.

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632. Bibliography of North American geology for 1913, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 584, 183 pp.

633. Useful minerals of the United States, Samuel Sanford and Ralph W. Stone.—U. S. Geol. Survey, Bull. 585, 250 pp.

Gives a brief description of the minerals and their occurrences.

634. Placer law as applied to petroleum, Max W. Ball.—Am. Inst. Min. Eng., 20 pp., New York Meeting, February.

635. Geology and geography of a portion of Lincoln County, Alfred R. Schultz.—U. S. Geol. Survey, Bull. 543, 141 pp., 11 pls., 8 figs.; (abstract), Washington Acad. Sci., Jour., vol. 4, no. 13, p. 370, July 19.

636. Atlantic City gold mining district, Fremont County, L. W. Trumbull.—Wyoming, Geologist's Office, Bull. 7, pp. 69-97, 2 maps, 3 pls.; Min. Sci., vol. 69, pp. 45-49, June.

637. Gold placers on Wind and Bighorn rivers, Frank G. Schrader. —U. S. Geol. Survey, Bull. 580, pp. 127-145, 1 pl. (map), 1 fig.

638. Possibilities of oil in the Big Muddy dome, Converse and Natrona counties, V. H. Barnett.—U. S. Geol. Survey, Bull. 581, pp. 105-117, 1 pl. (map).

639. Douglas oil and gas field, Converse County, V. H. Barnett.—U. S. Geol. Survey, Bull. 541, pp. 49-88, 2 figs., map.

640. The Moorcroft oil field, Crook County, V. H. Barnett.—U. S. Geol. Survey, Bull. 581, pp. 83-104, 1 pl., 1 fig., (maps).

641. The Salt Creek oil field, L. W. Trumbull.—Wyoming, Geologist's Office, Ser. B, Bull. 8, pp. 103-148, 3 maps.

642. The Shoshone River section, D. F. Hewett.—U. S. Geol. Survey, Bull. 541, pp. 89-113, 1 pl.

643. The ore deposits of Kirwin, Wyoming, D. F. Hewett.—U. S. Geol. Survey, Bull. 540, pp. 121-132, 3 figs.

644. Sulphur deposits in Park County, D. F. Hewett.—U. S. Geol. Survey, Bull. 540, pp. 477-480.

645. Results of spirit leveling in Wyoming, 1896-1912, R. B. Marshall.—U. S. Geol. Survey, Bull. 558, 148 pp.

646. Post-Cretaceous history of the mountains of central western Wyoming, Eliot Blackwelder.—Washington Acad. Sci., Jour., vol. 4, no. 15, pp. 445-446, September 19.

647. On the names of lower Eocene faunal horizons, of Wyoming and New Mexico, Walter Granger.—Am. Mus. Nat. Hist., Bull., vol. 33, pp. 201-207.

648. Osteology of the armored Dinosauria in the United States National Museum, with special reference to the genus Stegosaurus, Charles W. Gilmore.—U. S. Nat. Mus., Bull., 89, 136 pp., 37 pls., 73 figs.

649. Tertiary Mollusca from New Mexico and Wyoming, T. D. A. Cockerell.—Am. Mus. Nat. Hist., Bull., vol. 33, pp. 101-107, 3 pls.

650. Land shells from the Tertiary of Wyoming, T. D. A. Cockerell.—Am. Mus. Nat. Hist., Bull., vol. 33, pp. 323-325, 5 figs.

651. Two new plants from the Tertiary rocks of the West, T. D. A. Cockerell.—Torreya, vol. 14, no. 8, pp. 135-137, 2 figs., August.

652. Petrographic analysis of the Bridger, Washakie, and other Eocene formations of the Rocky Mountains, with introduc-

tory note by D. W. Matthew, Albert Johannsen.—Am. Mus. Nat. Hist., Bull., vol. 33, pp. 209-222, 2 figs.

653. Fossil forests of the Yellowstone National Park, Frank Hall Knowlton.—U. S. Dept. of Interior, Office of Sec., 31 pp., 15 figs., map.

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654. Bibliography of North American geology for 1914, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 617, 167 pp.

655. Biennial report, 1913-1914, L. W. Trumbull.—Wyoming Geologist's Office, Ser. B, Bull. 9, pp. 149-168.

656. Guidebook of the western United States, the Overland Route, Willis T. Lee, Ralph W. Stone, Hoyt S. Gale, and others.—U. S. Geol. Survey, Bull. 612, 244 pp., 28 maps, 50 pls., 20 figs.; (abstract by F. L. Ransome), Washington Acad. Sci., Jour., vol. 5, no. 16, p. 580, October 4.

With a side trip to Yellowstone Park.

657. Gold, silver, copper, and lead in South Dakota and Wyoming in 1914, Charles W. Henderson.—U. S. Geol. Survey, Mineral Resources, 1914, pt. 1, pp. 239-254.

658. Origin of thick gypsum and salt deposits, E. B. Branson.—Geol. Soc. America, Bull., vol. 26, no. 2, pp. 231-242, 2 figs., June 28; (abstract and discussion), no. 1, pp. 103-104, March 31.

659. The accumulation of petroleum near the outcrop of oil sands, Leon J. Pepperberg.—Western Eng., vol. 5, no. 11, pp. 463-465, May.

660. The Basin and Greybull oil and gas fields, F. F. Hintze, jr.—Wyoming, Geologist's Office, Bull. 10, 62 pp., map.

661. Map of the Big Muddy and Douglas oil fields, L. W. Trumbull.—Wyoming, Geologist's Office, 10 by 25 inches. Scale: 1 inch = 1 mile.

Compiled from U. S. Geol. Survey reports.

662. The Grass Creek oil and gas field, F. F. Hintze, jr.—Wyoming, Geologist's Office, Bull. 11, pt. 2, pp. 91-120, 1 map, 1 illus., 1 pl., 1915.

663. The Little Buffalo Basin oil and gas field, F. F. Hintze, jr.—Wyoming, Geologist's Office, Bull. 11, pt. 1, pp. 67-90, 6 pls. (incl. maps).

664. Map of the Rock Springs uplift, Dry Lake dome, Sweetwater

County, L. W. Trumbull.—Wyoming, Geologist's Office, 12 by 19 inches. Scale: 1 inch=2 miles.

Compiled from U. S. Geological Survey coal reports and data of detailed survey.

665. Correlation of some of the Cretaceous and Eocene formations of central Wyoming, C. J. Hares.—(abstract), Washington Acad. Sci., Jour., vol. 5, no. 9, pp. 328-330, May 4.

666. Post-Cretaceous history of the mountains of central Wyoming, Eliot Blackwelder.—Jour. Geology, vol. 23, no. 2, pp. 97-117; no. 3, pp. 193-217; no. 4, pp. 307-340, 2 pls. (maps), 51 figs.

667. The relation of the Upper Cretaceous formations of southern Wyoming and northeastern Colorado, W. B. Heroy.—(abstract), Washington Acad. Sci., Jour., vol. 5, no. 9, pp. 330-331, May 4.

668. Fox Hills formation of Colorado and Wyoming, Timothy W. Stanton.—Washington Acad. Sci., Jour., vol. 5, no. 9, pp. 332-333, May 4.

669. Origin of red beds of western Wyoming, E. B. Branson.—Geol. Soc. Am., Bull., vol. 26, no. 2, pp. 217-230, June 28; (abstract and discussion), no. 1, pp. 61-62, March 31.

670. A fully exposed reef of calcareous algae(?) in the middle Cambrian of the Teton Mountains, Eliot Blackwelder.—Am. Jour. Sci., 4th ser., vol. 39, pp. 646-650, 3 figs., June.

671. A critical study of the fossil bird *Gallinuloides wyomingensis* Eastman, Robert Wilson Shufeldt.—Jour. Geology, vol. 23, no. 7, pp. 619-634, 2 figs., October-November.

672. The mammals and horned dinosaurs of the Lance formation of Niobrara County, Wyoming, Richard Swan Lull.—Am. Jour. Sci., 4th ser., vol. 40, pp. 319-348, 5 figs. (incl. maps), October.

673. Gastropod Mollusca from the Tertiary strata of the West, T. D. A. Cockerell.—Am. Mus. Nat. Hist., Bull., vol. 34, pp. 115-120, 5 figs.

674. A new mosasaur from the Fort Pierre (*Platecarpus brachycephalus*, Wyoming), Frederic B. Loomis.—Am. Jour. Sci., 4th ser., vol. 39, pp. 555-566, 9 figs., May.

675. *Poposaurus gracilis*, a new reptile from the Triassic of Wyoming, Maurice G. Mehl.—Jour. Geology, vol. 23, no. 6, pp. 516-522, 2 figs., September-October.

676. Osteology of Thescelosaurus, an orthopodous dinosaur from the Lance formation of Wyoming, Charles W. Gilmore.—

U. S. Nat. Mus., Proc., vol. 49, pp. 591-616, 3 pls., 20 figs., December 23.

677. New species of the Unio from the Tertiary rocks of Wyoming, T. D. A. Cockerell.—Am. Mus. Nat. Hist., Bull., vol. 34, pp. 121-126, 4 figs.

678. A revision of the lower Eocene Wasatch and Wind River faunas, William Diller Matthew and Walter Granger.—Am. Mus. Nat. Hist., Bull., vol. 34, pp. 1-103, 311-328, 329-361, 429-483, 1 pl., 167 figs.

679. Guidebook of western United States, The Northern Pacific Route, with a side trip to Yellowstone Park, Marius R. Campbell, et al.—U. S. Geol. Survey, Bull. 611, 212 pp., 27 pls., 38 figs., 27 maps; (abstract, by F. L. Ransome), Washington Acad. Sci., Jour., vol. 5, no. 16, pp. 579-580, October 4.

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680. Bibliography of North American geology for 1915, with subject index, John M. Nickles.—U. S. Geol. Survey, Bull. 645, 144 pp.

681. Principles of oil and gas production, Roswell H. Johnson and L. G. Huntley.—371 pp., 148 figs., New York, John Wiley & Sons.

Concise description of the various oil fields of Wyoming.

682. Petroleum withdrawals and restorations affecting the public domain, Max W. Ball.—U. S. Geol. Survey, Bull. 623, 427 pp., maps.

683. Economic geology of the North Laramie Mountains, Converse and Albany counties, Arthur C. Spencer.—U. S. Geol. Survey, Bull. 626, pp. 47-81, 2 pls. (maps), 4 figs. (maps); (abstract), Washington Acad. Sci., Jour., vol. 6, no. 13, p. 449, July 19.

684. The Atlantic gold district, Fremont County, Arthur C. Spencer.—U. S. Geol. Survey, Bull. 626, pp. 9-45, 3 pls. (maps), 2 figs. (maps).

685. Gold, silver, copper, and lead in South Dakota and Wyoming in 1915, Charles W. Henderson.—U. S. Geol. Survey, Mineral Resources, 1915, pt. 1, pp. 343-356, November 3.

686. Gypsum in the southern part of the Bighorn Mountains, Charles T. Lupton and D. Dale Condit.—U. S. Geol.

Survey, Bull. 640, pp. 139-157, 3 pls. (incl. map), November 29.

687. Anticlines in central Wyoming, C. J. Hares.—U. S. Geol. Survey, Bull. 641, pp. 233-279, 1 pl. (map), 19 figs., December 16.

688. Oil and gas near Basin, Big Horn County, Charles T. Lupton.—U. S. Geol. Survey, Bull. 621, pp. 157-190, 2 pls. (maps), 1 fig., January 21.

689. Light oil fields of Wyoming, L. W. Trumbull.—Wyoming, Geologist's Office, Bull. 12, pp. 123-130, map; 2d ed., pp. 123-134, 1 pl., 1 map.

690. Oil shale in northwestern Colorado and adjacent areas, Dean E. Winchester.—U. S. Geol. Survey, Bull. 641, pp. 139-198, 10 pls. (incl. maps), 2 figs., December 18.

691. The Pilot Butte oil field, Fremont County, Victor Ziegler.—Wyoming, Geologist's Office, Bull. 13, pp. 139-178, 3 figs., 2 maps.

692. Petroleum in granite, Fremont County, L. W. Trumbull.—Wyoming, Geologist's Office, Bull. 1, scient. ser., pp. 5-16, 3 figs. (incl. maps).

693. A reconnaissance for phosphate in the Salt River Range, George Rogers Mansfield.—U. S. Geol. Survey, Bull. 620, pp. 331-349, map, February 23.

694. The effect of structure upon the migration and separation of hydrocarbons in the Wyoming light oil fields, L. W. Trumbull.—Wyoming, Geologist's Office, scient. ser., Bull. 1, pt. 2, 10 pp., pls.

695. Topographic map of Wyoming, L. W. Trumbull.—Wyoming, Geologist's Office, contour interval 1000 ft., 36 by 48 in., scale 1-500,000.

Base map reproduced from U. S. Geological Survey. Contours from all available sources.

696. Notes on the stratigraphic and structural relations in southern and eastern Bighorn Basin, Charles T. Lupton.—(abstract), Washington Acad. Sci., Jour., vol. 6, no. 10, pp. 310-311, May 19.

697. Relations of the Embar and Chugwater formations in central Wyoming, D. Dale Condit.—U. S. Geol. Survey, Prof. Paper 98, pp. 263-270, 3 pls. (incl. maps), 2 figs., December 4.

698. Review of the stratigraphy and structure of the Hanna Basin, C. F. Bowen.—(abstract), Washington Acad. Sci., Jour., vol. 6, no. 9, pp. 253-254, May 4.

699. Stratigraphic relations of some of the Cretaceous and Tertiary formations of the Hanna and Powder River basins with those of the Wind River Basin, C. J. Hares.—(abstract), Washington Acad. Sci., Jour., vol. 6, no. 9, pp. 255-256, May 4.

700. A study of the Morrison formation, Charles Craig Mook.—New York Acad. Sci., Annals, vol. 27, pp. 39-191, 1 pl. (map), 94 figs., June 12.

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