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Appendices to "The importance of the museum in antebellum U.S. western territorial exploration: Part 2. The roles of Hayden and Meek in a paradigm shift in geologic and paleontologic studies"

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TABLE App-1. HAYDEN'S "CATALOG OF MINERALS AND GEOLOGICAL SPECIMENS"

Includes "II. Sedimentary Rocks" [Excludes I. Igneous and Metamorphic Rocks]

Hayden (1862, Chapter XIV, p. 133-137; with annotations; Same numbered specimens as Hayden, 1858 [1875])

Catalog data organized by state traveling downriver and going upsection. Localities/specimens within states are organized by upriver and upsection (as much as possible). Hayden most likely did not collect each specimen from the same location. Thus "specimen" numbers are effectively localities.
Hayden entries are reorganized by primary lithology, followed by descriptive information. Data, spellings, stratigraphy, and nomenclature are of Hayden; annotations are given for clarity (e.g., name changes, locations). State order: Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas, and Wyoming.

Hayden Number	Hayden Description (Reformatted)	Keywords ("[…]" = Added Words)
Montana, upper Missouri River		
Hayden (1862), Tertiary, A. Lignite Basin. "Milk river," [Montana]		
Loc./Spec. 328	328. Shale, brown, with vegetable impressions	[Plants]
Loc./Spec. 329	329. Shale, silicious, containing much vegetable matter	[Plants]
Loc./Spec. 330	330. Limestone, shell, soft, gray	Shell[s]
Hayden (1862), Cretaceous, Formation No. 4 [Fox Hills]. "Milk river," [Montana]		
Loc./Spec. 272	272. Limestone, arenaceous, gray arenaceous	Limestone
Hayden (1862), Tertiary, A. Lignite Basin. "Mussel-shell river," [Montana]		
Loc./Spec. 345	345. Clay, dove-colored, metamorphosed by burning out of lignite beds	[Clinker]
Loc./Spec. 346	346. Shale, brownish, metamorphosed by burning out of lignite beds	[Clinker]
Hayden (1862), Cretaceous, Formation No. 4 [Fox Hills]. "Mussel-shell river," [Montana]		
Loc./Spec. 271	271. Spar, dog-tooth	Spar
Loc./Spec. 286	286. Wood bored by *Xylophaga Stimpsoni*	*Xylophaga Stimpsoni*
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Near Ammel's Is.," [Armel's Island*, Montana]		
Loc./Spec. 182	182. Lignite, impure shaly, with selenite	Lignite, with selenite
* Armel's Island, after MRC (1893), but in a different location than Hayden (1862).		
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Badlands of Judith," [Montana]		
Loc./Spec. 163	163. Conglomerate and sandstone, with *Unios*	*Unios*
Loc./Spec. 164	164. Conglomerate	Conglomerate
Loc./Spec. 165	165. Conglomerate, fine, with Melanias and *Cyclas*	*Melanias, Cyclas*
Loc./Spec. 166	166. Gray arenaceous limestone, with *Melania* and *Helix*	*Melania, Helix*
Loc./Spec. 167	167. Conglomerate, same as No. 165	Conglomerate
Loc./Spec. 168	168. Limestone, arenaceous (No. 166), with leaves of *Credneria* , Melanias, &c.	*Credneria* , Melanias
Loc./Spec. 169	169. Indurated ferruginous clay, with Melanias	Melanias, *Cyclas*
Loc./Spec. 170	170. Ferruginous sand, with *Unio danai*	*Unio danai*
Loc./Spec. 171	171. Indurated clay, with Melanias and scales of *Lepidotus* above No. 166	*Lepidotus*
Loc./Spec. 172	172. Shell limestone, containing Melanias	Melanias, shells
Loc./Spec. 173	173. Impure sandy lignite (stratum D of section)	Lignite
Loc./Spec. 174	174. Shell limestone, same as No. 172	shell limestone
Loc./Spec. 175	175. Cream-colored shale, burnt from over lignite beds	Shale [clinker]
Loc./Spec. 176	176. Compact argillaceous limestone, with *Cytherea Oweni* (marine), beneath fresh-water beds	*Cytherea Oweni*
Loc./Spec. 177	177. Ferruginous sandstone, with *Tellina subtortuosa*	*Tellina subtortuosa*
Loc./Spec. 178	178. Rough, gray, limestone, with *Ostrea glabra*	*Ostrea glabra*
Loc./Spec. 179	179. Ferrugiuous sandstone, with *Inoceramus pertenuis* , upper marine strata	*Inoceramus pertenuis*
Loc./Spec. 180	180. Lignite, over No. 179	Lignite
Loc./Spec. 424	424. Basalt, compact, protruded	Basalt
Loc./Spec. 425	425. Trachyte	Trachyte
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Rocky mountain creek," [Montana] [determine location]		
Loc./Spec. 181	Carbonaceous sand from decomposition of lignite bed over No. 179 [sic]	Sand
[Little] Rocky Mountain creek near Armel- check.		
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Mouth Big Horn," [Yellowstone River, Bighorn River, west of Bighorn, Montana]		
Loc./Spec. 422	422. Iron ore, prismatic	Iron ore
Hayden (1862), Jurassic. "Big Horn river," [Yellowstone River, Bighorn River, west of Bighorn, Montana]		
Loc./Spec. 160	160. Gypsum, snowy, with no stains, equivalent of No. 153 [sic]	Gypsum
Loc./Spec. 161	161. Gypsum, with crystals of selenite	Gypsum
Hayden (1862), Jurassic. "Near sources of Yellowstone," [Montana–Wyoming]		
Loc./Spec. 162	162. Gypsum, with crystals of selenite	Gypsum
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Powder river," [tributary of Yellowstone River, Montana]		
Loc./Spec. 421	421. Sand, very fine gray, from sand dune	Sand

Hayden (1862), Tertiary, A. Lignite Basin. "Powder river," [tributary of Yellowstone River, Montana]		
Loc./Spec. 335	335. Limestone, argillaceous, soft, with *Paludina trochiformis*	*Paludina trochiformis*
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Yellowstone river," [Montana]		
Loc./Spec. 408	408. Conglomerate, ferruginous	Conglomerate
Loc./Spec. 409	409. Granite, micaceous	Granite
Loc./Spec. 410	410. Hornblendic rock	[Igneous]
Loc./Spec. 411	411. Limestone, with corals	Corals
Loc./Spec. 412	412. Limestone, with *Spirifer*	Spirifer
Loc./Spec. 413	413. Limestone, with *Orthoceratite*	Orthoceratite
Loc./Spec. 414	414. Limestone, with *Syringopora*	Syringopora
Loc./Spec. 415	415. Chalcedony	Chalcedony
Loc./Spec. 416	416. Wood, silicified	Wood
Loc./Spec. 417	417. Limestone, with red chert	Limestone
Hayden (1862), Tertiary, A. Lignite Basin. "High Butte,* Little Missouri," Montana]		
Loc./Spec. 314	314. Clay, drab indurated	Clay
* High Butte location on Little Missouri River unknown. High Buttes is located on Yellowstone River (Warren, 1867).		
Hayden (1862), Tertiary, A. Lignite Basin. "Yellowstone," [Montana]		
Loc./Spec. 317	317. Lignite	Lignite
Loc./Spec. 318	318. Lignite, more impure	Lignite
Loc./Spec. 319	319. Concretions sulphuret iron, common throughout Tertiary series	Concretions
Loc./Spec. 331	331. Clay, carbonaceous, with *Unio, Paludina,* &c.	*Unio, Paludina* +
Loc./Spec. 334	334. Sandstone, calcareous, gray, with *Unio, Paludina,* &c.	*Unio, Paludina* +
Loc./Spec. 338	338. Shale, calcareous, brown, with *Taxites*	*Taxites*
Loc./Spec. 339	339. Wood, silicified	Wood
Loc./Spec. 340	340. Wood, silicified, partially carbonized	Wood
Loc./Spec. 341	341. Wood, silicified, partially carbonized	Wood
Loc./Spec. 342	342. Wood, silicified, partially carbonized	Wood
Loc./Spec. 343	343. Wood, silicified, partially carbonized	Wood
Loc./Spec. 347	347. Scoria, black, formed by by burning out of lignite beds	Scoria
Loc./Spec. 348	348. Scoria, yellowish, formed by by burning out of lignite beds	Scoria
Loc./Spec. 349	349. Scoria, black compact, formed by by burning out of lignite beds	Scoria
Loc./Spec. 350	350. Scoria, green vitreous, formed by by burning out of lignite beds	Scoria
Loc./Spec. 351	351. Scoria, green vitreous, formed by by burning out of lignite beds	Scoria
Loc./Spec. 352	352. Scoria, red, very porous, formed by by burning out of lignite beds	Scoria
Loc./Spec. 353	353. Scoria, brown, very porous, formed by by burning out of lignite beds	Scoria
Loc./Spec. 354	354. Shale, burned red, with vegetable impressions	[Plants]
Loc./Spec. 355	355. Shale, bright red, with vegetable impressions	[Plants]
Loc./Spec. 356	356. Shale, vermilion, with gypsum	Shale
Loc./Spec. 356.5	356.5. Shale, burned black, ferruginous	Shale
Loc./Spec. 357	357. Pumice, calcareous, from burning of limestone	Pummice
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Yellowstone river," [Montana]		
Loc./Spec. 274	274. Shale, argillaceous, soft	Shale
Loc./Spec. 275	275. Concretions of compact blue limestone, containing great numbers of fossils	[Fossiliferous]
Loc./Spec. 276	276. Concretions (ditto 275), containing large crustacean (undescribed)	Crustacen
North Dakota, upper Missouri River		
Hayden (1862), Tertiary, A. Lignite Basin. "Fort Union," [North Dakota–Montana]		
Loc./Spec. 315	315. Marl, light-colored, with impressions of dicotyledonous leaves	Dicotyledonous leaves
Loc./Spec. 316	316. Lignite, earthy	Lignite
Loc./Spec. 320	320. Septaria, spherical	Septaria
Loc./Spec. 321	321. Clay, carbonaceous, indurated, charged with vegetable remains, freshwater and land shells, *Bulimus, Physa, Pupa* , &c.	Plants, freshwater and land shells, *Bulimus, Physa, Pupa* +
Loc./Spec. 322	322. Wood, mineralized	Wood
Loc./Spec. 323	323. Wood, carbonized, from lignite bed	Wood
Loc./Spec. 324	324. Marl, sandy light	Marl
Loc./Spec. 325	325. Marl, shell, containing freshwater shells	Freshwater shells
Loc./Spec. 326	326. Lignite, impure	Lignite
Loc./Spec. 327	327. Clay, fine, light-colored, under lignite bed	Clay

Loc./Spec. 336	336. Concretions, crystallized carbonate of lime	Concretions
Loc./Spec. 337	337. Limestone, argillaceous, dove-colored, with impressions of ferns, over No. 315	Ferns
Loc./Spec. 344	344. Wood, silicified, cavities lined with drusy quartz	Wood
Hayden (1862), Tertiary, A. Lignite Basin. "Fort Berthold," [North Dakota]		
Loc./Spec. 311	311. Limestone, argillaceous, with fossil plants	Plants
Loc./Spec. 312	312. Marl, fine, light-colored, under lignite bed	Marl
Loc./Spec. 313	313. Lignite, compact, bright	Lignite
Hayden (1862), Tertiary, A. Lignite Basin. "Red Spring," [North Dakota]		
Loc./Spec. 310	310. Shale, calcareous, dove-colored, with Unios and other freshwater shells	Unios, freshwater shells
Loc./Spec. 333	333. Limestone, compact bluish, with freshwater shells	Freshwater shells
Hayden (1862), Tertiary, A. Lignite Basin. "Fort Clark," [North Dakota]		
Loc./Spec. 304	304. Clay, indurated, light colored, base of section	Clay
Loc./Spec. 305	305. Clay, carbonaceous, dark, over No. 304	Clay
Loc./Spec. 306	306. Lignite, over No. 305	Lignite
Loc./Spec. 307	307. Shale, argillaceous dark, over No. 306	Shale
Loc./Spec. 308	308. Sand, indurated yellow, with *Paludina* and *Melania* [location empty]	*Paludina* and *Melania*
Loc./Spec. 309	309. Sand, indurated, grayish [location empty]	Sand
Hayden (1862), Tertiary, A. Lignite Basin. "Top of Square butte," [North Dakota]		
Loc./Spec. 299	299. Sandstone, coarse, calcareous, gray, with fossils	Fossils
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Cannon-ball river," [North Dakota]		
Loc./Spec. 423	423. Efflorescence on soil	Soil
Hayden (1862), Cretaceous, Formation No. 5 [Fox Hills]. "Cannon-ball river," [North Dakota]		
Loc./Spec. 273	273. Limestone, gray arenaceous, with carbonized matter and shells	Shells
Loc./Spec. 282	282. "Cone in cone" (No. 241) [sic]	Cone-in-Cone
Loc./Spec. 290	290. Sandstone, yellowish calcareous,with *Cyprina*	*Cyprina*
Loc./Spec. 291	291. Sandstone, yellowish calcareous, decomposed	Sandstone
Loc./Spec. 292	292. Sandsone, soft fine, with *Rostellaria*	*Rostellaria*
Loc./Spec. 293	293. Sandstone, ferruginous, with *Cytherea*	*Cytherea*
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Mouth of Cannon-ball river," [North Dakota]		
Loc./Spec. 265	265. Shale, argillaceous, dark, with *Inoceramus*	*Inoceramus*
Hayden (1862), Cretaceous, Formation No. 3 [Niobrara]. "Mouth of James river," [North Dakota]		
Loc./Spec. 241	241. Gray marl, with *Ostrea congesta* , and fish remains (base of No. 3)	*Ostrea congesta* , fish
Loc./Spec. 242	242. Gray marl, with *Ostrea congesta* , and fish remains (base of No. 3)	*Ostrea congesta* , fish
Loc./Spec. 243	243. Scale of *Cyclocladus* in No. 242	*Cyclocladus*
Hayden (1862), Tertiary, A. Lignite Basin. Long Lake, [North Dakota]		
Loc./Spec. 296	Clay, yellow arenaceous, on Cretaceous rocks [no location given]	Clay
Loc./Spec. 297	Clay, yellowish indurated, with freshwater shells over No. 296	Freshwater shells
Loc./Spec. 298	Sand, gray, fine, over No. 297	Sand
Hayden (1862), Cretaceous, Formation No. 5 [Fox Hills]. "Long lake," [North Dakota]		
Loc./Spec. 294	294. Wood, silicified, with bark	Wood
Loc./Spec. 295	295. Wood, silicified, bored by *Teredo globosa*	*Teredo globosa* bored wood
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Long lake, Miss." [North Dakota]		
Loc./Spec. 266	266. Limestone, blue concretionary, with *Rostellaria*	*Rostellaria*
Loc./Spec. 267	267. Clay, indurated	Clay
South Dakota, upper Missouri River and tributaries		
Hayden (1862), Tertiary, B. White River Basin, Bed E. Grindstone hill, [Grindstone Buttes, Grindstone Creek, upper Bad River, South Dakota]		
Loc./Spec. 392	392. Conglomerate	Conglomerate
Loc./Spec. 393	393. Quartzose conglomerate	Conglomerate
Hayden (1862), Cretaceous, Formation No. 5 [Fox Hills]. "Head of Little Mo." [Missouri, = Bad River = Teton River, South Dakota*]		
Loc./Spec. 288	288. Yellow arenaceous limestone, with *Venus*	*Venus*
Loc./Spec. 289	289. Yellow arenaceous limestone, softer	Limestone
* Warren (1855; Dacota map). Head of Little Missouri River that begins in North Dakota is near Missouri Buttes (see text, Newton, 1879).		
South Dakota, upper Missouri River, tributaries Big Shyenne [Cheyenne River]		
Hayden (1862), Tertiary, A. Lignite Basin. "Cherry Creek," [tributary of Cheyenne River, South Dakota]		
Loc./Spec. 303	303. Sand, indurated, yellow, with estuary shell of genus *Cyrena*	*Cyrena*
Hayden (1862), Tertiary, A. Lignite Basin. "Shyenne river," [Cheyenne River, South Dakota]		
Loc./Spec. 360	Sandstone, coarse whitish, above No. 358 [sic]	Sandstone

Loc./Spec. 361	Sandstone, coarse whitish, concretionary, above No. 358 [sic]	Sandstone
Loc./Spec. 362	Sandstone, soft whitish calcareous, with scales of mica	Sandstone
Loc./Spec. 363	Clay, greenish plastic	Clay
Hayden (1862), Tertiary, A. Lignite Basin. "On Shyenne river," [On Cheyenne River, South Dakota]		
Loc./Spec. 358	358. Clay, red sandy, containing pebbles, base of *Titanotherium* bed	*Titanotherium* bed
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Big Shyenne," [Cheyenne River, South Dakota]		
Loc./Spec. 269	269. Hematite, brown	Hematite
Loc./Spec. 270	270. Hematite, brown, more earthy	Hematite
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Shyenne River," [Cheyenne River, South Dakota]		
Loc./Spec. 261	Crystalline argillaceous limestone (Cone in cone)	Cone-in-cone
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Forks of Shyenne," [Forks of Cheyenne River, South Dakota]		
Loc./Spec. 277	Carbonate of lime, crystallized, yellow, forming nucleus of concretions	[Limestone]
Loc./Spec. 278	Selenite, crystals of	Selenite
Loc./Spec. 279	Clay, blue indurated, with fibrous gypsum	Clay
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Mouth Shyenne," [Mouth of Cheyenne River, South Dakota]		
Loc./Spec. 263	Selenite and fibrous carbonate lime	[Satin sparstone], selenite
South Dakota, about Bijou Hills, upper Missouri River		
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Medicine hills," [Medicine Butte, now unnamed*, near Medicine Creek, South Dakota]		
Loc./Spec. 389	389. Green silicious [sic] concretions in limestone, containing freshwater shells	Freshwater shells
Loc./Spec. 390	390. Green silicious [sic] concretions in limestone, containing freshwater shells [sic]	Freshwater shells
* Medicine Hill (Warren, 1867); Medicine Butte labelled on GLO-BLM (1891) plat for T. 106 N., R. 73 R.		
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Bijoux hills," [Bijou Hills, South Dakota]		
Loc./Spec. 386	386. Conglomerate	Conglomerate
Loc./Spec. 387	387. Calcareous concretions in marl, under No. 386	Concretions
Loc./Spec. 388	388. Sulphate baryta, foliated crystals in No.387 [thin layer of barium sulfate]	Baryta
Hayden (1862), Cretaceous, No. 4 [Pierre]. "Bijoux hills," [Bijou, South Dakota]		
Loc./Spec. 255	255. Clay, alum, whitish, seams in No. 253	Clay
Loc./Spec. 256	256. Hydrated silicate of magnesia [talc], masses in formation No. 4 [Pierre]	[Talc]
Loc./Spec. 257	257. Baryta, sulphate, crystals	Baryta
Loc./Spec. 258	258. Aluminous earth in seams, white [pure clay]	[Clay]
Loc./Spec. 259	259. Clay, aluminous (No. 255)	Clay
Loc./Spec. 260	260. Concretions, ferruginous, throughout F[ormation] No. 4 [Pierre]	Concretions
Hayden (1862), Cretaceous, Formation No. 3 [Niobrara Formation]. "Bijoux hills," [Bijou Hills, South Dakota]		
Loc./Spec. 246	246. Yellow marl	Marl
Loc./Spec. 247	247. Yellow marl, lighter	Marl
Loc./Spec. 248	248. Carbonate of lime, crystalline, seams in marl	[Limestone]
Loc./Spec. 249	249. Carbonate of lime, crystalline, greenish in marl	[Limestone]
Hayden (1862), Cretaceous, Formation No. 3 [Niobrara Formation]. "Near Bijoux hills," [near Bijou Hills, South Dakota]		
Loc./Spec. 251	251. Shale, argillaceous, with fish remains over No. 250,	Fish
Loc./Spec. 250	250. Clay, black plastic, upper part of No. 3 [Niobrara]	Clay
Loc./Spec. 252	252. Shale, argillaceous, calcined by combustion of No. 250,	Shale
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Great bend of Miss.,"* [Big Bend, Missouri River, South Dakota]		
Loc./Spec. 253	253. Clay, blue, with *Ptychoceras Mortoni*	*Ptychoceras Mortoni*
Loc./Spec. 254	254. Clay, yellow, with crystals of gypsum	Gypsum
*A "Great Bend" of the Missouri is mapped by Warren (1867) above the Little Missouri River and below the Little Knife River, North Dakota, and traverses through Paleocene strata. The "Great Bend" referred to, however, is about 35 mi (53 km) below Pierre, South Dakota, and north of Fort Lookout and Medicine Hills. *P. mortoni* assigned to *Oxybeloceras* (see Spath, 1953).		
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Fort Lookout," [Fort Lookout 4*, South Dakota]		
Loc./Spec. 287	287. Clay, white aluminous	Clay
* Fort Lookout (4) is plotted on GoggleEarth and an original plat.		
Hayden (1862), Cretaceous, Formation No. 2 [Benton]. "Mouth of Vermilion" [Missouri River, South Dakota, adjacent to Nebraska]		
Loc./Spec. 222	Sulphuret iron [iron pyrite], masses of, with sulphate	[Pyrite]
Loc./Spec. 223	Sulphuret iron [iron pyrite], crystallized masses of, with sulphate	[Pyrite]
Loc./Spec. 224	Gypsum, crystallized	Gypsum
Loc./Spec. 225	Gypsum, crystallized	Gypsum
Loc./Spec. 226	Gypsum, crystallized, in plates	Gypsum
Loc./Spec. 227	Clay, large crystals selenite, in black clay	Clay

Loc./Spec. 228	Clay, large crystals selenite, in black clay [sic]	Clay
Loc./Spec. 229	Shale, ferruginous, with remains of fishes	Fishes
Loc./Spec. 230	Shale, ferruginous, shell limestone	Shale, coquina
Loc./Spec. 231	Clay, yellow, with gypsum	Gypsum
Loc./Spec. 232	Conglomerate, with green silicious [sic] pebbles	Conglomerate
Loc./Spec. 233	Conglomerate, with shark's teeth	Conglomerate
Loc./Spec. 234	Limestone, gray arenaceous, with *Cytherea orbiculata*	*Cytherea obirculata*
Loc./Spec. 235	Limestone, gray arenaceous, with fish scales	Fish scales
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Mouth of Big Sioux," [South Dakota]		
Loc./Spec. 212	212. Sandstone, ferruginous, fine-grained, with impressions of dicotyledonous leaves	Dicotyledonous leaves
Loc./Spec. 213	213. Sandstone, ferruginous, with *Solen Dacotaensis*	*Solen Dacotaensis*
Loc./Spec. 214	214. Lignite under No. 209 [sic]	Lignite
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Sage creek," [tributary of upper Big Shyenne {Cheyenne} River, South Dakota]		
Loc./Spec. 406	406. Sinter, silicious	Sinter
Hayden (1862), Tertiary, B. White River Basin, Bed A. "Sage creek," [tributary of upper Big Shyenne {Cheyenne} River, South Dakota]		
Loc./Spec. 364	364. Clay, greenish plastic, upper part	Clay
Hayden (1862), Tertiary, B. White River Basin, Bed B. "Bear creek," [tributary upper Big Shyenne {Cheyenne} River, South Dakota]		
Loc./Spec. 372	372. Marl, pinkish indurated	Marl
Loc./Spec. 373	373. Marl, whitish indurated, from over No. 372	Marl
Loc./Spec. 374	374. Concretion, pinkish calcareous	Concretion
Loc./Spec. 375	375. Decomposed marl from Nos. 372 and 373	Marl
Loc./Spec. 376	376. Marl, decomposed, with *Oreodon*	*Oreodon*
Hayden (1862), Tertiary, B. White River Basin, Bed A. "Bear creek," [tributary upper Big Shyenne {Cheyenne} River, South Dakota]		
Loc./Spec. 365	365. Chalcedony, plates of	Chalcedony
Loc./Spec. 366	366. Chalcedony, plates of	Chalcedony
Loc./Spec. 367	367. Chalcedony, plates of	Chalcedony
Loc./Spec. 368	368. Carbonate of lime, fibrous	[Satin sparstone]
Loc./Spec. 369	369. Chalcedony, dark	Chalcedony
Loc./Spec. 370	370. Magnesite	Magnesite
Loc./Spec. 371	371. Concretion, calcareous, separating bed a from bed b	Concretion
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Running water," [South Dakota]		
Loc./Spec. 394	394. Infusorial earth, white, base of bed e, local [sic]	[Diatomite]
Loc./Spec. 404	404. Wood, silicified	Wood
Loc./Spec. 405	405. Wood, silicified	Wood
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Bad Land creek," [tributary of upper White River, South Dakota]		
Loc./Spec. 391	391. Sandstone, coarse, whitish	Sandstone
Hayden (1862), Tertiary, B. White River Basin, Bed E. "White river," [South Dakota]		
Loc./Spec. 381	381. Grit, soft white	[Sandstone]
Loc./Spec. 382	382. Conglomerate, above No. 381	Conglomerate
Loc./Spec. 383	383. Conglomerate, with granitic pebbles	Conglomerate
Loc./Spec. 384	384. Soft white sandstone, with *Oreodon*	*Oreodon*
Hayden (1862), Tertiary, B. White River Basin, Bed D. "White river," [South Dakota]		
Loc./Spec. 377	377. Marl, cream-colored	Marl
Loc./Spec. 378	378. Limestone, silicious, with freshwater shells *Planorbis, Limnea* , &c.	*Planorbis, Limnea,* +
Loc./Spec. 379	379. Limestone, tufaceous, concretionary	Limestone
Loc./Spec. 380	380. Marl, cream-colored, containing *Oreodon*	*Oreodon*
Hayden (1862), Tertiary, A. Lignite Basin. "Thunder butte," [off Thunder Butte Creek, tributary of Moreau River, South Dakota]		
Loc./Spec. 300	300. Shale, argillo, calcareous, soft, with fossil shells	Shells
Loc./Spec. 301	301. Shale, ferruginous, with coniferous plants	Coniferous plants
Loc./Spec. 302	302. Sandstone, dove-colored, with silicified wood	Wood
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Grand river," [upper Missouri River, South Dakota]		
Loc./Spec. 280	Shale, dove-colored laminated	Shale
Loc./Spec. 281	Wood, petrified, bored by *Teredo bisinuata*	*Teredo bisinuata* bored wood
Loc./Spec. 283	Clay, indurated, with shells	Shells
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "12 m. ab. Ft. Pierre," [12 mi above Historic Fort Pierre, Missouri River, South Dakota]		
Loc./Spec. 264	264. Clay, yellow, witb selenite	Selenite
Hayden (1862), Cretaceous, Formation No. 4 [Pierre]. "Fort Pierre," [Historic Fort Pierre, Missouri River, South Dakota]		

Loc./Spec. 262	262. Clay beds, crystals of selenite	Clay
Loc./Spec. 268	268. Shale, decomposed (No. 253 [sic])	Shale
Loc./Spec. 284	284. Sandstone, soft micaceous, thin seams in clay bed	Sandstone
Loc./Spec. 285	285. Vertebra of *Mososaurus*	*Mososaurus*
Hayden (1862), Cretaceous, Formation No. 3 [Niobrara]. "Dorion's hills," [Dorian Butte, north of Keya Paha, tributray of Niobrara River, Tripp County, South Dakota]		
Loc./Spec. 244	244. Carbonate of lime, fibrous [satin sparstone], with *Ostrea congesta* attached to surface	*Ostrea congesta*
Loc./Spec. 245	245. Marl, yellow	Marl
Hayden (1862), Tertiary, B. White River Basin, Bed E. Bear Peak,* [South Dakota]		
Loc./Spec. 407	407. Carbonate of lime	[Limestone]
* Bear Butte seems unlikely, but is used here. Vicinity of Bear Mountain in western Pennington County includes appropriate deposits.		
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Black hills," [South Dakota]		
Loc./Spec. 419	419. Sinter, silicious, from springs	Sinter
Loc./Spec. 420	420. Sand from sand hills	Sand
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Black hills," [South Dakota]		
Loc./Spec. 199	199. Sandstone, red, ferruginous, with many species of dicotyledonous leaves	Dicotyledonous leaves
Loc./Spec. 200	200. Sandstone, red, ferruginous, with many species of dicotyledonous leaves	Dicotyledonous leaves
Loc./Spec. 201	201. Sandstone, light gray quartzose, with balls of sulphate of iron over No. 199	Sandstone
Loc./Spec. 202	202. Sandstone, light gray quartzose, with dicotyledonous leaves	Dicotyledonous leaves
Hayden (1862), Jurassic. "Black hills," [South Dakota]		
Loc./Spec. 147	147. Limestone, arenaceous, bluish, over No. 146, with Avicula	*Avicula*
Loc./Spec. 146	146. Limestone, arenaceous, light brown, *with Avicula tenuicottata*	*Avicula tenuicottata*
Loc./Spec. 148	148. Limestone, ferruginous, with *Cypricardia*	*Cypricardia*
Loc./Spec. 149	149. Limestone, ferruginous, red, with *Avicula*	*Aviciula*
Loc./Spec. 150	150. Limestone, yellow arenaceons, with *Serpula*	*Serpula*
Loc./Spec. 157	157. Limestone, arenaceous, same as No. 150, containing *pentacrinus* , with *serpula* and *ostrea* attached to surfaces [sic]	*Pentacrinus, Serpual, Ostrea*
Loc./Spec. 151	151. Limestone, bored with lithophagous molluks	Boring mollusks
Loc./Spec. 152	152. Marl, red, over No. 141 [153], containing snowy gypsum	Marl
Loc./Spec. 153	153. Gypsum, snowy, from No. 152	Gypsum
Loc./Spec. 154	154. Gypsum, crystalline, from seams in No. 152	Gypsum
Loc./Spec. 155	155. Gypsum fibrous, from seams in No. 152	Gypsum
Loc./Spec. 156	156. Limestone, blue compact (freshwater), in No. 158, containing *Unio nucalis* and *Planorbis* [Upper Jurassic]	*Unio nucalis, Planorbis*
Loc./Spec. 158	158. Yellowish argillo-arenaceous limestone, with *ostrea [sic]* , **Upper Jurassic**	*Ostrea*
Loc./Spec. 159	159. Gray shell limestone, containing *Ammonites, Belmnites* , &c., interstratified with No. 158 [Upper Jurassic]	*Ammonites, Belmnites* +
Hayden (1862), Cretaceous, Formation No. 2 [Benton]. "Black hills, E. base," [South Dakota]		
Loc./Spec. 236	236. Clay, dark gray indurated, with fish scales	Fish scales
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Black hills, E. base," [South Dakota]		
Loc./Spec. 183	183. Limestone, with *Cypris* , lower part of formation No. 1 [Dakota]	*Cypris*
Loc./Spec. 184	184. Wood, silicified, ferruginous	Wood
Loc./Spec. 185	185. Wood, silicified, coniferous	Coniferous wood
Loc./Spec. 186	186. Bone of saurian	Saurian
Loc./Spec. 187	187. Bone of saurian, or cetacean	Saurian or cetacean
Hayden (1862), Cretaceous, Formation No. 2 [Benton]. "Black hillls, W. base," [South Dakota-Wyoming]		
Loc./Spec. 239	239. Limestone, arenaceous limestone, gray, with *Inoceramus problematicus*	*Inoceramus problematicus*
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Black Hills, W. base," [South Dakota-Wyoming]		
Loc./Spec. 188	188. Sandstone, dense ferruginous	Sandstone
Loc./Spec. 189	189. Sandstone, quartzose, bluish	Sandstone
Nebraska, Platte Valley and its tributaries		
Hayden (1862), Tertiary, B. White River Basin. "Loup fork," [Nebraska]		
Loc./Spec. 395	395. Infusorial earth, white, base of bed e, local [sic]	[Diatomite]
Loc./Spec. 399	399. Marl, white	Marl
Loc./Spec. 400	400. Limestone, whitish chert	Limestone
Loc./Spec. 403	403. Marl, white tufaceous, containing fresh-water shells	Fresh-water shells
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Warren's fork," [now North Loup, tributary Loup River, tributary Platte Valley, Nebraska]		
Loc./Spec. 397	397. Marl, indurated, white	Marl
*Warren Creek" of South Dakota is a tributary of Moreau River. "Warren's Fork" of Nebraska was latter renamed as North Loup River.		

Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Platte valley," [Nebraska]		
Loc./Spec. 191	191. Conglomerate from junction of cretaceous and carboniferous rocks [sic]	Conglomerate
Loc./Spec. 193	193. Sandstone, dark ferruginous, over No. 192	Sandstone
Loc./Spec. 192	192. Sandstone, coarse ferruginous, with pebbles, over No. 199 [sic]	Sandstone
Loc./Spec. 194	194. Sandstone, dark ferruginous, containing much iron	Sandstone
Loc./Spec. 195	195. Sandstone, dark ferruginous, containing much iron	Sandstone
Hayden (1862), Tertiary, A. Lignite Basin. "Elk Horn prairie," [Nebraska]		
Loc./Spec. 332	332. Shell limestone, coarse, gray	[Coquina]
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Mouth of Elk Horn," [Nebraska]		
Loc./Spec. 197	197. Sandstone, ferruginous, fine-grained	Sandstone
Loc./Spec. 198	198. Sandstone, dark, coarse, very ferruginous	Sandstone
Nebraska, along Niobrara River Valley, tributary of Missouri River, Nebraska		
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Niobrara river," [Nebraska]		
Loc./Spec. 398	398. Tufa, silicious tufa	Tufa
Loc./Spec. 401	401. Limestone, white foliated	Limestone
Loc./Spec. 402	402. [No number or information]	[x]
Nebraska, Decatur, Blackbird, Dixon's Bluff, and Sioux City, Missouri River		
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Near source of Big Sioux," [Nebraska]		
Loc./Spec. 426	426. Bed pipe-stone, Catlinite, obtained by Maj. H. Day, U. S. A, from near source of Big Sioux, viz. Nicollet, p. 16	Catlinite
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Big Sioux," [Nebraska]		
Loc./Spec. 418	418. Concretions from yellow marl	Concretions
Hayden (1862), Cretaceous, Formation No. 3 [Niobrara]. "Big Sioux," [Nebraska]		
Loc./Spec. 240	240. Limestone, soft yellow, with *Inoceramus problematicus*	*Inoceramus problematicus*
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Big Sioux," [Nebraska]		
Loc./Spec. 208	208. Sandstone, ferruginous, with striated bivalves, and *Cytherea arenaria*	Bivalves, *Cytherea arenaria*
Loc./Spec. 209	209. Clay, indurated, with dicotyledonous leaves	Dicotyledonous leaves
Loc./Spec. 210	210. Clay, indurated, sand, fine,yellow, with leaves of *salix* [sic]	*Salix*
Loc./Spec. 215	215. Wood, silicified, bored by teredo [sic]	Teredo bored wood
Hayden (1862), Cretaceous, Formation No. 2 [Benton]. "Dixon's bluffs," [Nebraska]		
Loc./Spec. 237	237. Limestone, arenaceous (No.234 [sic]), with *Serpula*	*Serpula*
Loc./Spec. 238	238. Conglomerate, with fish teeth	Fish teeth
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Blackbird Hill" and "Blackbird Hills," [overlooking Missouri River, Nebraska]		
Loc./Spec. 196	196. Sandstone, ferruginous	Sandstone
Loc./Spec. 204	204. Sandstone, whitish pulverulent, fine-grained under No. 199 [sic]	Sandstone
Loc./Spec. 205	205. Clay, indurated, bluish	Clay
Loc./Spec. 216	216. Wood, silicified, bored by teredo [sic]	*Teredo* bored wood
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Decatur," [Missouri River, Nebraska]		
Loc./Spec. 206	206. Clay, indurated, yellow	Clay
Loc./Spec. 207	207. Clay, indurated, yellow	Clay
Iowa, bluffs and tributaries of upper Missouri River		
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Sioux City," [Missouri River, Iowa]		
Loc./Spec. 203	203. Sandstone, whitish pulverulent, over No. 199 [sic]	Sandstone
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Mouth of Iowa creek," [Iowa]		
Loc./Spec. 211	211. Sandstone, ferruginous	Sandstone
Kansas, tributaries of Kansas River, tributary of Missouri River		
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Smoky hill," [Smoky Hills, Kansas River drainage, Kansas]		
Loc./Spec. 219	219. Coarse, ferruginous sandstone, with of *Credneria*	*Credneria*
Loc./Spec. 220	220. Sandstone, very ferruginous	Sandstone
Loc./Spec. 221	221. Rock, cellular, ferruginous	Rock ["Scoria"]
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Smoky Hill fork," [Smoky Hill River, tributary of Republication River, Kansas River, Kansas]		
Loc./Spec. 217	217. Silicified wood, bored by teredo [sic]	*Teredo* bored wood
Hayden (1862), Cretaceous, Formation No. 1 [Dakota]. "Republican fork," [Republication River, Kansas River, Kansas]		
Loc./Spec. 218	218. Silicified wood, bored by teredo [sic]	*Teredo* bored wood
Wyoming localities		
Hayden (1862), Tertiary, B. White River Basin, Bed E. [x = Wind River Basin, Wyoming]		

Loc./Spec. 396	396. [x no number or info]	[x]
Hayden (1862), Tertiary, B. White River Basin, Bed E. "Fort Laramie," [North Platte River, Wyoming]		
Loc./Spec. 385	385. Calcareous conglomerate	Conglomerate
Hayden (1862), Tertiary, B. White River Basin, Bed A. "Old Woman's fork," [Old Woman Creek, tributary of Lance Creek and Cheyenne River, Wyoming]		
Loc./Spec. 359	359. Teeth of *Titanotherium Prouti*	*Titanotherium Prouti*

Table A-2. TAXA OF THE FIRST YEAR CATALOG OF MEEK AND HAYDEN (1857 [1856e])

(See Figure 5 for biostratigraphic ordering of the following taxa.)

Taxon #	Meek and Hayden (1857 [1856e]) Original Nomenclature
Tx001	*Cardium speciosum* Meek & Hayden
Tx002	*Cytherea Owenana* Meek & Hayden
Tx003	*Inoceramus pertenuis* Meek & Hayden
Tx004	*Inoceramus ventricosus* Meek & Hayden
Tx005	*Mactra alta* Meek & Hayden
Tx006	*Mactra formosa* Meek & Hayden
Tx007	*Mytelus subarcuatus*Meek & Hayden [sic]
Tx008	*Natica subcrassa* Meek & Hayden
Tx009	*Panopea occidentalis* Meek & Hayden
Tx010	*Phalodomya undata* Meek & Hayden
Tx011	*Tellina subtortuosa* Meek & Hayden
Tx012	*Tellina? Cheyennensis* Meek & Hayden
Tx013	*Hettangia Americana* Meek & Hayden
Tx014	*Natica Tuomyana* Meek & Hayden
Tx015	*Pectunculus Siouxensis* Hall & Meek
Tx016	*Thracia? gracilis* (M.&H.)–*Tellina gracilis* Meek & Hayden
Tx017	*Ammonites percarinatus* Hall & Meek
Tx018	*Cytherea orbiculata* Hall & Meek
Tx019	*Cytherea tenuis* Hall & Meek
Tx020	*Inoceramus Conradi* Hall & Meek
Tx021	*Inoceramus fragilis* Hall & Meek
Tx022	*Inoceramus problematicus* Schlotheim*
Tx023	*Ostrea congesta* Conrad
Tx024	*Cytherea Missouriana* Morton
Tx025	*Nucula subplana* Meek & Hayden
Tx026	*Phalodomya fibrosa* (M.&H.)–*Avicula? fibrosa* Meek & Hayden
Tx027	*Turritella? coxvexa* Meek & Hayden
Tx028	*Acteon concinnus* Hall & Meek
Tx029	*Acteon subellipticus* Meek & Hayden
Tx030	Ammonites complexus Hall & Meek
Tx031	*Ammonites Halli* Meek & Hayden
Tx032	*Ammonites opalis* Owen
Tx033	*Ancyloceras Mortoni* Hall & Meek
Tx034	*Ancyloceras? Nicoletti* Hall & Meek
Tx035	*Avicula Haydeni* Hall & Meek
Tx036	*Avicula linguiformis* Evans & Shumard–*Avicula* undt. Owen
Tx037	*Avicula triangularis* Evans & Shumard
Tx038	*Baculites compressus* Say
Tx039	*Buccinum constrictum* Hall & Meek
Tx040	*Buccinum? vinculum* Hall & Meek
Tx041	*Bulla occidentalis* Meek & Hayden
Tx042	*Bulla subcylindrica* Meek & Hayden
Tx043	*Callianassa danai* Hall & Meek
Tx044	*Caprinella coraloidea* Hall & Meek
Tx045	*Capulus occidentalis* Hall & Meek
Tx046	*Corbula? gregaria* Meek & Hayden
Tx047	*Crassatella Evansi* Hall & Meek
Tx048	*Cucullaea exigua* Meek & Hayden
Tx049	*Cytherea pellucida* Meek & Hayden
Tx050	*Dentalium fragilis* Meek & Hayden
Tx051	*Dentalium gracilis* Hall & Meek
Tx052	*Fusus Shumardii* Hall & Meek
Tx053	*Fusus? tenuilineatus* Hall & Meek
Tx054	*Gervilia subtortuosa* Meek & Hayden
Tx055	*Helcion alveolis* Meek & Hayden
Tx056	*Helcion borealis* (Morton)*
Tx057	*Helcion carinatus* Meek & Hayden
Tx058	*Helcion patelliformis* Meek & Hayden
Tx059	*Helcion sexsulcatus* Meek & Hayden
Tx060	*Helcion subovatus* Meek & Hayden
Tx061	*Inoceramus convexus* Hall & Meek
Tx062	*Inoceramus incurvus* Meek & Hayden
Tx063	*Inoceramus Nebrascensis* Owen
Tx064	*Inoceramus Sagensis* Owen
Tx065	*Inoceramus sublaevus* Hall & Meek
Tx066	*Inoceramus tenuilineatus* Hall & Meek
Tx067	*Lingula subspatulata* Hall & Meek

Tx068 *Lucina occidentalis* Meek & Hayden*
Tx069 *Lucina subundata* Hall & Meek
Tx070 *Natica concinna* Hall & Meek
Tx071 *Natica obliquata* Hall & Meek
Tx072 *Natica paludinaformis* Hall & Meek
Tx073 *Nucula obsoletastriata* Meek and Hayden
Tx074 *Nucula subnasuta* Hall & Meek
Tx075 *Nucula ventricosa* Hall & Meek
Tx076 *Ostrea patina* Meek & Hayden
Tx077 *Pecten rigida* Hall & Meek
Tx078 *Phalodomya elegantula* Evans & Shumard
Tx079 *Rostellaria biangulata* Meek & Hayden
Tx080 *Rostellaria fusiformis* Hall & Meek
Tx081 *Rostellaria Nebrascensis* Evans & Shumard
Tx082 Scaphites nodosus Owen (not of others)
Tx083 *Solarium flexistriatum* Evans & Shumard
Tx084 *Tellina equilateralis* Meek & Hayden
Tx085 *Tellina Prouti* Meek & Hayden
Tx086 *Turbo Nebrascensis* Meek & Hayden
Tx087 *Turbo tenuilineatus* Meek & Hayden
Tx088 *Turrilites Cheyennensis* (M. & H.)-*Ancyloceras? Cheyennensis* M.&H.
Tx089 *Turrilites Nebrascensis* (M. & H.)-*Ancyloceras? Nebrascensis* M.&H.
Tx090 *Venus? circularis* Meek & Hayden
Tx091 *Ammonites placenta* Dekay
Tx092 *Baculites ovatus* Say
Tx093 *Inoceramus Barabini* Morton
Tx094 *Nautilus Dekayi* Morton
Tx095 *Ostrea larva* Lamarck
Tx096 *Pecten Nebrascensis* Meek & Hayden
Tx097 *Scaphites Nicolletii* Morton*
Tx098 *Belemitella mucronata* Schlotheim
Tx099 *Mytelus Galpinianus* Evans & Shumard [sic]
Tx100 *Avalana subglobosa* Meek & Hayden
Tx101 *Ammonites lobatus* Tuomy–*Ammonites lenticularis* Owen
Tx102 *Astarte gregaria* Meek & Hayden
Tx103 *Baculites grandis* Hall & Meek
Tx104 *Belemitella? bulbosa* Meek & Hayden
Tx105 *Buccinum? Nebrascensis* Meek & Hayden
Tx106 *Bulla minor* Meek & Hayden
Tx107 *Bulla volvaria* Meek & Hayden
Tx108 *Busycon Bairdi* (Meek & Hayden)–*Pyrula Bairdi* Meek & Hayden
Tx109 *Capulus fragilis* Meek & Hayden
Tx110 *Cucullaea cordata* Meek & Hayden
Tx111 *Cucullaea Nebrascensis* Owen
Tx112 *Cucullaea Shumardi* Meek & Hayden
Tx113 *Cytherea Deweyi* Meek & Hayden
Tx114 *Cytherea Nebrascensis* Meek & Hayden
Tx115 *Fasciolaria buccinoides* Meek & Hayden
Tx116 *Fasciolaria cretacea* Meek & Hayden
Tx117 *Fusus contortus* Meek & Hayden
Tx118 *Fusus Culbertsoni* Meek & Hayden
Tx119 *Fusus Dakotaensis* Meek & Hayden
Tx120 *Fusus flexuocostatus* Meek & Hayden
Tx121 *Fusus Galpinanus* Meek & Hayden
Tx122 *Fusus Newberryi* Meek & Hayden
Tx123 *Leda Moreauensis* (M.&H.)–*Corbula Moreauensis* Meek & Hayden
Tx124 *Leda ventricosa* (M.&H.)–*Corbula ventricosa* Meek & Hayden
Tx125 *Mactra Warrenana* Meek & Hayden
Tx126 *Mytelus attenuatus* Meek & Hayden [sic]
Tx127 *Natica Moreauensis* Meek & Hayden
Tx128 *Natica occidentals* Meek & Hayden
Tx129 *Natica? ambigua* Meek & Hayden
Tx130 *Nucula cancellata* Meek & Hayden
Tx131 *Nucula equilateralis* Meek & Hayden
Tx132 *Nucula Evansi* Meek & Hayden
Tx133 *Nucula planomarginata* Meek & Hayden
Tx134 *Nucula scitula* Meek & Hayden
Tx135 *Phalodomya (Goniomya) Americana* (M.&H.)–*Goniomya Americana* M.&H.
Tx136 *Scalaria cerithiformis* Meek & Hayden
Tx137 *Scaphites Conradi* Morton*
Tx138 *Scaphites Mandanensis* Morton*
Tx139 *Limopsis parvula* (M&H.)–*Pectunculina parvula* Meek & Hayden†
Tx140 *Solemya subplicata* (M.&H.)–*Solen subplicata* Meek & Hayden

Tx141 *Tellina scitula* Meek & Hayden
Tx142 *Tellina subelliptica* Meek & Hayden
Tx143 *Turritella Moreauensis* Meek & Hayden
Tx144 *Cypris Leidyi* Evans & Shumard
Tx145 *Helix Leidyi* Hall & Meek
Tx146 *Limnea diaphana* Evans & Shumard
Tx147 *Limnea Nebrascensis* Evans & Shumard
Tx148 Physa secalina Evans & Shumard
Tx149 Planorbis Nebrascensis Evans & Shumard
Tx150 *Melania convexa* Meek & Hayden
Tx151 *Paludina Conradi* Meek & Hayden
Tx152 *Bulimus limneaformis* Meek & Hayden
Tx153 *Bulimus Nebrascensis* Meek & Hayden
Tx154 *Bulimus? teres* Meek & Hayden
Tx155 *Bulimus? vermiculus* Meek & Hayden
Tx156 *Cerithium Nebrascensis* Meek & Hayden
Tx157 *Corbula mactriformis* Meek & Hayden
Tx158 *Corbula perundata* Meek & Hayden
Tx159 *Corbula subtrigonalis* Meek & Hayden
Tx160 *Cyclas formosa* Meek & Hayden
Tx161 *Cyclas fragilis* Meek & Hayden
Tx162 *Cyclas subellipticus* Meek & Hayden
Tx163 *Cyrena intermedia* Meek & Hayden
Tx164 *Cyrena Moreauensis* Meek & Hayden
Tx165 *Cyrena occidentalis* Meek & Hayden
Tx166 *Limnea tenuicosta* Meek & Hayden
Tx167 *Melania Anthonyi* Meek & Hayden
Tx168 *Melania minutula* Meek & Hayden
Tx169 *Melania multistriata* Meek & Hayden
Tx170 *Melania Nebrascensis* Meek & Hayden
Tx171 *Paludina Leaii* Meek & Hayden
Tx172 *Paludina Leidyi* Meek & Hayden
Tx173 *Paludina multilineata* Meek & Hayden
Tx174 *Paludina peculiaris* Meek & Hayden
Tx175 *Paludina retusa* Meek & Hayden
Tx176 *Paludina trochiformis* Meek & Hayden
Tx177 *Paludina vetula* Meek & Hayden
Tx178 *Physa longiuscula* Meek & Hayden
Tx179 *Physa Nebrascensis* Meek & Hayden
Tx180 *Physa rhomboidea* Meek & Hayden
Tx181 *Physa subelongata* Meek & Hayden
Tx182 *Planorbis convolutus* Meek & Hayden
Tx183 *Planorbis subumbilicatus* Meek & Hayden
Tx184 *Pupa helicoides* Meek & Hayden
Tx185 *Unio priscus* Meek & Hayden
Tx186 *Valvata parvula* Meek & Hayden
Tx187 *Velletia (Ancylus) minuta* Meek & Hayden