DEPARTMENT OF THE INTERIOR

UNITED STATES GEOLOGICAL SURVEY

TRACE ELEMENTS

INVESTIGATIONS REPORT 554

Table 1.--Generalized stratigraphic section of sedimentary rocks exposed in the Green River and Henry Mountains districts, Utah[1].

System	Series	Group	Formation	Member	Thickness (feet)	Character of rocks
Tertiary(?)			Wasatch(?) formation			White, locally fossiliferous limestone interbedded with white biotitic tuff and tuffaceous sediments; conglomerate.
			UNCONFORMITY			
Cretaceous	Upper Cretaceous		Mesaverde formation		300-400	Yellowish-gray cliff-forming sandstone containing thin interbeds of shale.
			Mancos shale	Masuk	600-800	Lenticular sandstone, shale, carbonaceous shale, and shaly limestone. Mostly continental in origin, but some is marine.
				Emery sandstone	0-250	Present in Henry Mountains district only. Lower part is yellowish-gray massive sandstone. Upper part is lenticular gray sandstone, shale, carbonaceous shale, and coal.
				Blue gate shale	1,500	Blue-gray marine shale.
				Ferron sandstone	10-300	Yellowish-brown lenticular sandstone, shale, carbonaceous shale and coal. Lower part grades eastward into Tununk shale member.
				Tununk shale	500-650	Blue-gray marine shale; numerous thin beds of bentonite.
			Dakota sandstone		0-50	Yellowish-brown to gray cliff-forming conglomeratic sandstone; locally contains carbonaceous shale and thin coal beds.
			UNCONFORMITY			
Jurassic	Upper Jurassic		Morrison formation	Brushy Basin	300-500	Variegated green, gray, purple, and red bentonitic mudstone locally containing thin fresh-water limestone beds; siliceous conglomeratic sandstone and varicolored chert pebble conglomerate beds near top. The upper third of the Brushy Basin member has been separated and named Cedar Mountain formation by Stokes (1952) in the northwestern part of the Green River district.
				Salt Wash	200-600	Yellowish-brown to gray-white fine to conglomeratic lenticular sandstone with interbedded red and green mudstone.
			UNCONFORMITY			
		San Rafael group	Summerville formation		50-250	Thin evenly bedded reddish-brown sandstone and shale; minor amounts of greenish-white sandstone, gypsum, and limestone.
			Curtis formation		0-235	Evenly bedded greenish-gray to brown glauconitic(?) sandstone and shale; locally contains siliceous geodes and nodules and thin beds of gypsum; mostly marine; grades eastward into Summerville.
			UNCONFORMITY			
			Entrada sandstone		300-700	Silty red sandstone grading eastward to pink to grayish-white massive crossbedded sandstone; the Moab tongue, 0-115 feet thick, lies at the top of the Entrada and is whiter and more massive than most of the Entrada.
	Upper and Middle Jurassic		Carmel formation		100-600	Pink to reddish-brown sandstone, shale, and gray fossiliferous sandy limestone, highly contorted bedding and local unconformities in upper part; thick beds of gypsum in western part of Henry Mountains district.
			UNCONFORMITY			
Jurassic and Jurassic(?)		Glen Canyon group	Navajo sandstone		160-800	Buff to light-gray massive crossbedded sandstone with a few thin beds of fresh-water limestone.
Jurassic(?)			Kayenta formation		160-320	Reddish sandstone and shaly sandstone; irregularly bedded, in part massive; minor amounts of red shale, green clay, and thin fresh-water limestone.
Triassic	Upper Triassic		Wingate sandstone		210-380	Red to buff massive crossbedded cliff-forming sandstone.
			Chinle formation	Church rock	0-350	Reddish-brown to light-brown very fine grained sandy siltstone.
				Owl Rock	0-250	Pale-red to reddish-brown siltstone and thin local limestone beds.
				Petrified Forest	0-100	Variegated red, purple, green and yellow bentonitic claystone and clayey sandstone; reddish orange in Circle Cliffs; intertongues with Owl Rock member to the north.
				Moss Back	0-150	Yellowish-gray to greenish-gray fine- to medium-grained to conglomeratic cliff-forming sandstone, shale, and limy siltstone pebble conglomerate.
				Monitor Butte	0-200	Greenish-gray and minor amounts of pale reddish-brown bentonitic mudstone or clayey sandstone. Often has highly contorted and slumped bedding.
				Shinarump	0-200	Yellowish-gray medium-grained to conglomeratic sandstone and conglomerate containing clear to milky or pink quartz pebbles; carbonaceous material and silicified wood abundant in places.
				"Mottled siltstone beds" (Not given member status in this report)	0-50	Purplish-red siltstone to coarse gray-white sandstone, conglomeratic in places; frequently characterized by a mottled purple, red, white, yellow, and brown color phenomena known locally as "purple-white"; present locally in Circle Cliffs and area between Green and Colorado Rivers.
			UNCONFORMITY			
	Lower and Middle(?) Triassic		Moenkopi formation		0-900	Reddish-brown evenly bedded ripple-laminated siltstone and fine sandstone, gray-green in some areas; wedges out in eastern Utah; includes Sinbad limestone member in Circle Cliffs and Capitol Reef areas.
			UNCONFORMITY			
Permian			Kaibab limestone		0-350	White, buff, and light-gray limestone and limy sandstone containing siliceous concretions.
			Coconino(?) sandstone		400-800	White to buff, fine-grained, massive, crossbedded sandstone; present in western part of Henry Mountains district and thought to grade eastward into White Rim and Cedar Mesa members of the Cutler formation (Hunt, 1953).
			Cutler formation		1,000±	Red to purplish-brown to light-gray arkosic sandstone and micaceous sandy shale; in southeastern part of Green River district, white crossbedded sandstone 0-230 feet thick (White Rim sandstone member) in upper part of formation; red siltstone arkosic sandstone, and sandy shale (Organ Rock tongue) and light-gray to buff crossbedded sandstone (Cedar Mesa member) are in lower part of formation.
Pennsylvanian and Permian(?)			Rico formation		0-585	Brown to red and purple sandstone; red and purple coarse arkose, and gray, brown, red, and purple shale; gray to greenish-gray fossiliferous limestone.
Pennsylvanian			Hermosa formation	Upper member	900-1,800	Blue, greenish, and gray fossiliferous limestone interbedded with white, gray, and greenish sandstone and gray to green shale; well-log data indicates lower half contains more limestone than upper half.
				Paradox	2,000±	Salt, anhydrite, and gypsum with interbedded gray, black, and brown shale and a little limestone and sandstone. Crops out only in intrusive masses in breached salt anticlines.

[1] In part after McKnight (1940), Baker (1946), Hunt (1953), and Luedke (1954).