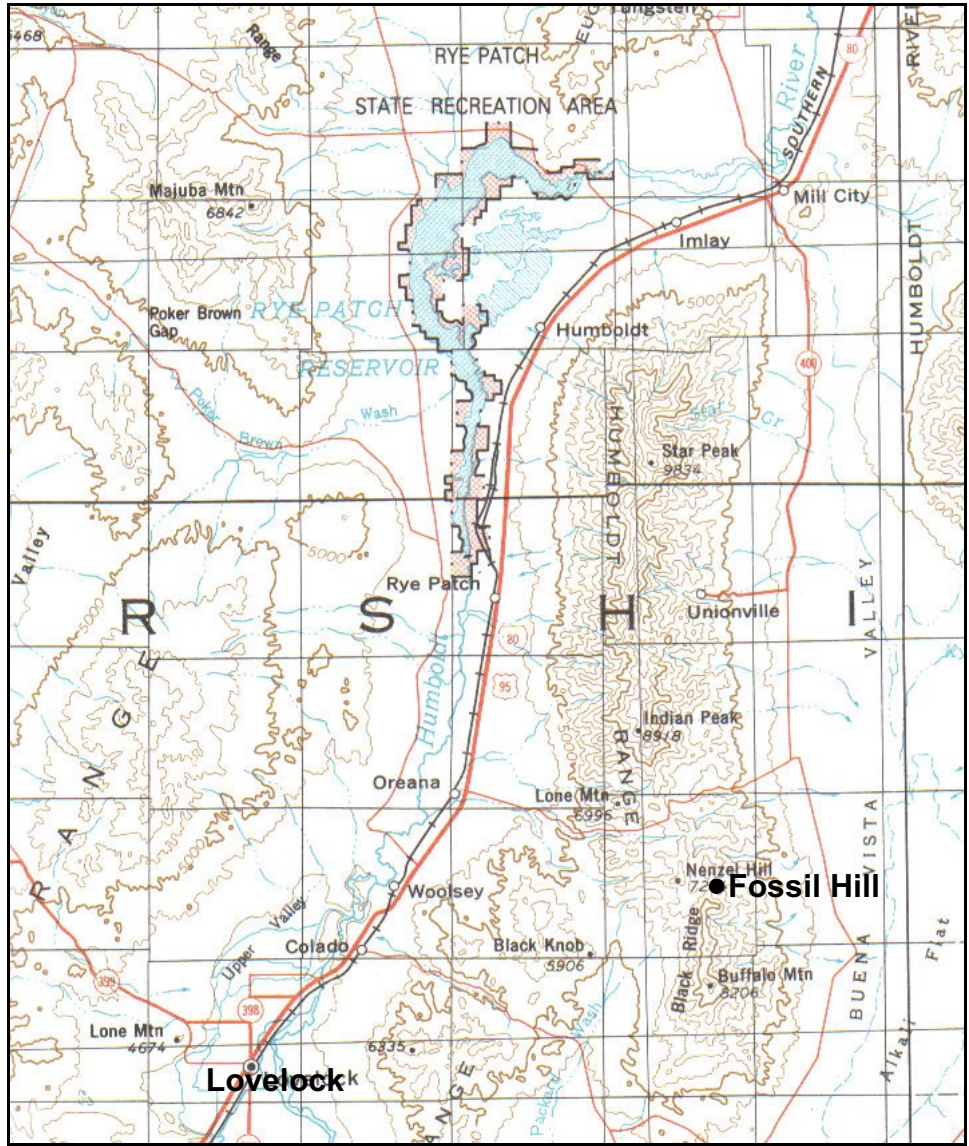


**THE
EXTREME
AMMONITES
OF
FOSSIL HILL,
PERSHING COUNTY, NEVADA**

Copyright 2005 Clarence D. Basso

CLARENCE D. BASSO
2545 CARVILLE DRIVE
RENO, NEVADA 89512
775-356-0264



Fossil Hill Area Map

The Extreme Ammonites of Fossil Hill Pershing County, Nevada

Copyright 2005 Clarence D. Basso

In 1902 a scientist with the U.S. Geological Survey visited Fossil Hill (sections 19, 30, T.28N. R.35E.) in Troy Canyon near South American Canyon on the eastern flank of the Humboldt Range, Pershing County, Nevada, and discovered a remarkable fossil bed. James P. Smith (1914, p. 8-11, 52) noted: "... the hillside was literally covered with loose ammonites that had been set free from the matrix by the work of frost."

Ammonites are the prehistoric ancestors of modern cephalopods and lived in the warm lagoonal waters of an ancient sea that covered much of western North America some 200 million years ago.

Among the specimens collected by Smith was an ammonite that measured 8.81 inches in diameter, shown here (Fig. 1) at 85 percent of natural size. Another specimen, although incomplete at 10.25 inches, was described by Smith as the "largest and handsomest species of *Gymnites* known," concluding that the diameter of a whole specimen may have been as much as 15.75 inches. It is shown in Fig. 2 cropped at 75 percent of incomplete specimen size or 49 percent of estimated whole specimen size.

Sixty years later another scientist with the Survey revisited Fossil Hill to study the stratigraphic distribution of the ammonites and documented 11 faunal units of one genus in 80 feet of limestone and shale interbeds.

N.J. Silberling (1962, p. 156-157, 159) collected over 2,700 specimens that exhibited "the gradual replacement of one species by another of the same genus [which] is thought to be due mainly to evolutionary changes taking place under more or less uniform environmental conditions."

In his 1914 work, "The Middle Triassic Marine Invertebrate Faunas of North America," Smith discussed some of the localities of such fossils in Nevada and specifically Fossil Hill. He said:

All the Middle Triassic fossils known from Nevada come from the central-western part of the State, chiefly from the West Humboldt Range, the East Range, and the Desatoya Mountains. In the reports of the United States Geological Exploration of the Fortieth Parallel all the rocks of this region lying between the Jurassic and the Archean were called Triassic and were divided into the Star Peak group and the Koipato group, all the fossils being assigned indiscriminately to the Upper Triassic. Of the fossils described by Gabb and Meek from the Star Peak formation, only *Pseudomonotis subcircularis* is known certainly to have come from the Upper Triassic. The others, so far as their horizon has been determined definitely, belong to the Middle Triassic and came from a bed of shaly limestone, not more than 200 feet thick, lying at the base of the Star Peak formation and more than 1,000 feet below the massive Upper Triassic limestone of the Star Peak formation.

The sequence of beds was seen best and fossils were most abundant and best preserved in the West Humboldt Range. From Star Peak southward the Triassic makes up the eastern face of the range for more than 30 miles. The Middle Triassic shaly limestone forms a broken band along the foothills and lower slopes of the range, and the massive Upper Triassic limestone forms rugged cliffs along the eastern face near the top.

The best locality for Middle Triassic fossils in Nevada is an isolated outcrop of the *Daonella*-bearing limestones on the eastern slope of Buffalo Peak, on a foothill called "Fossil Hill," four miles south of [the site of] Fitting, on the divide between Troy Canyon and the south fork of American Canyon, at an elevation of about 5,000 feet above the sea and 1,000 feet above Star [Buena Vista] Valley. At this place the *Daonella*-bearing limestones are reduplicated by repeated faulting and are exposed over a much larger area than is common with those soft beds. Moreover, they are not indurated, as are most of those beds, so that the fossils are abundant and well preserved. At this single locality the writer has collected in five visits of from one to three weeks 130 species, of which 111 are ammonites. The local absence of induration, mineralization, and metamorphism has tended to the preservation of the fossils that once must have been abundant everywhere in the *Daonella*-bearing limestone.

The extreme heat of summer and the equally extreme-cold of winter have caused the shaly limestone to split readily, and the fossils are easily removed from the matrix. The collecting ground renews itself every few years by the work of the winter frosts in splitting open the slabs of limestone that line the hillside. When the writer first visited this locality in 1902 the hillside was literally covered with loose ammonites that had been set free from the matrix by the work of frost.



Fig. 1. *Gymnites alexandrae* Smith (.85 natural size)



Fig. 2. *Gymnites alexandrae* Smith (75 percent of incomplete specimen size; 49 percent of estimated complete size)

The species listed below are not all equally common, some being present in hundreds and others represented by a single specimen. The commonest forms are Ceratites, of the group of *C. humboldtensis* and *C. blakei*. Next in abundance would come Beyrichites, and third Nevadites. Arcestes probably comes next, and Ceratites, of the group of *C. trinodosus*, Tropigastrites, and Anolcites would follow in the order given. Wherever the beds are very shaly *Daonella dubia* is the commonest species. The statements as to the relative abundance of the species are based not on a single day's work, but on the experience of five seasons of collecting and on the relative abundance of the material obtained.

The fauna of Fossil Hill is listed in full below under the local lists of Middle Triassic fossils.

Tropigastrites	Ceratites altilis Smith	hyatti Meek
louderback Hyatt and Smith	becheri Smith	Nevadites fontainei Smith
halli Mojsisovics	cornutus Smith	humboldtensis Smith
neumayri Mojsisovics	crassicornu Smith	hyatti Smith
powelli Smith	ecarinatus Hauer	merriami Smith
rothpletzi Smith	emmonsii Smith	sinclari Smith
obliterans Smith	fissicostatus Hauer	whitneyi Gabb
trojanus Smith	gilberti Smith	Trachyceras barberi Smith
Celites gabbi Smith	haguei Smith	drakei Smith
polygyratus Smith	humboldtensis Hyatt and Smith	dunni Smith
Columbites humboldtensis Smith	karpinskyi Smith	furlongi Smith
plicatulus	kingi Smith	gabbi Smith
Arcestes hartzelli Smith	nevadanus Mojsisovics	gracile Smith
gabbi Meek	occidentalis Smith	americanum Mojsisovics
nevadanus Hyatt and Smith	pilatus Smith	homfrayi Gabb
quadrilabiatus Hauer	rectangularis Smith	lahontanum Smith
Nannites contractus Smith	rotuloides Smith	meeki Mojsisovics
Ptychites evansi Smith	spinifer Smith	subasperum Meek
Megaphyllites septentrionalis Smith	tenuispiralis Smith	Atractites elegans Smith
Monophyllites billingsianus Gabb	washburnei Smith	bockhi Sturzenbaum
Sageceras gabbi Mojsisovics	weaveri Smith	nevadensis Meek
Gymnites alexandrae Smith	williamsi Smith	solidus Smith
calli Smith	(Paraceratites) clarkei Smith	burckhardi Smith
(?) Perplanus Meek	cricki Smith	clavatulus Smith
Anagymnites rosenbergi Smith	Burckhardti Smith	Orthoceras blakei Gabb
actus (?) Hauer	gabbi Meek	campanile Mojsisovics
Hungarites fittingensis Smith	newberryi Smith	Germanonutilus furlongi Smith
Dalmatites minutus Smith	taurus Smith	Paranutilus multicameratus Gabb
parvus Smith	trinodosus Mojsisovics	Grypoceras whitneyi Gabb
Eutomoceras breweri Smith	trojanus Smith	Daonella americana Smith
dalli Smith	vogdesi Smith	dubia Gabb
dunni Smith	wardi Smith	lindstromi Mojsisovics
lahontanum Smith	(Hollandites) montis-bovis Smith	moussoni Merian
laubel Meek	organi Smith	Rhynchopteris obesus Gabb
Longobardites nevadanus Hyatt and Smith	(Philippites) argentarius Smith	Sphaera whitneyi Gabb
Lecanites parvus Smith	lawsoni Smith	Cymbospondylus petrinus Leidy
nudus Smith	(Gymnotoceras) blakei Gabb	piscosus Leidy
vogdesi Hyatt and Smith	beckeri Smith	
crassus Smith	(Gymnotoceras) hersheyi Smith	
Beyrichites dunni Smith	meeki Mojsisovics	
falciformis Smith		
osmonti Smith	russelli Smith	
rotelliformis Meek	spurri Smith	
tenuis Smith	wemplei Smith	
Dinarites desertorum Smith	Hatdenites hatschekii Diener	
(?) Pygmaeus Smith	Acrochordiceras foltzense Smith	

Bibliography

- Basso, Clarence D., 2004, *Eighty Six Historic Fossils of Nevada's Fortieth Parallel*. p. 9-16. Reno: Clarence D. Basso.
- Gabb, W.M., 1864, "Description of the Triassic Fossils of California and the Adjacent Territories." *Paleontology* 1. Geological Survey of California.
- Hall, James and R.P. Whitfield, 1877, *Paleontology*, Part II. Washington: Government Printing Office.
- Meek, Fielding B., 1877, *Paleontology*, Part I. Washington: Government Printing Office.
- Smith, James Perrin, 1914, "The Middle Triassic Marine Invertebrate Faunas of North America." U.S. Geological Survey *Professional Paper* 83, 148 p., 49 plates.
- Silberling, N.J., 1962, "Stratigraphic Distribution of Middle Triassic Ammonites at Fossil Hill, Humboldt Range, Nevada." *Journal of Paleontology* 36:1, p. 153-160.

