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1953, pp. 15-17. https://doi.org/10.56577/FFC-4.15

in:

Southwestern New Mexico, Kottlowski, F. E.; [ed.], New Mexico Geological Society 4 th Annual Fall Field Conference Guidebook, 153 p. https://doi.org/10.56577/FFC-4

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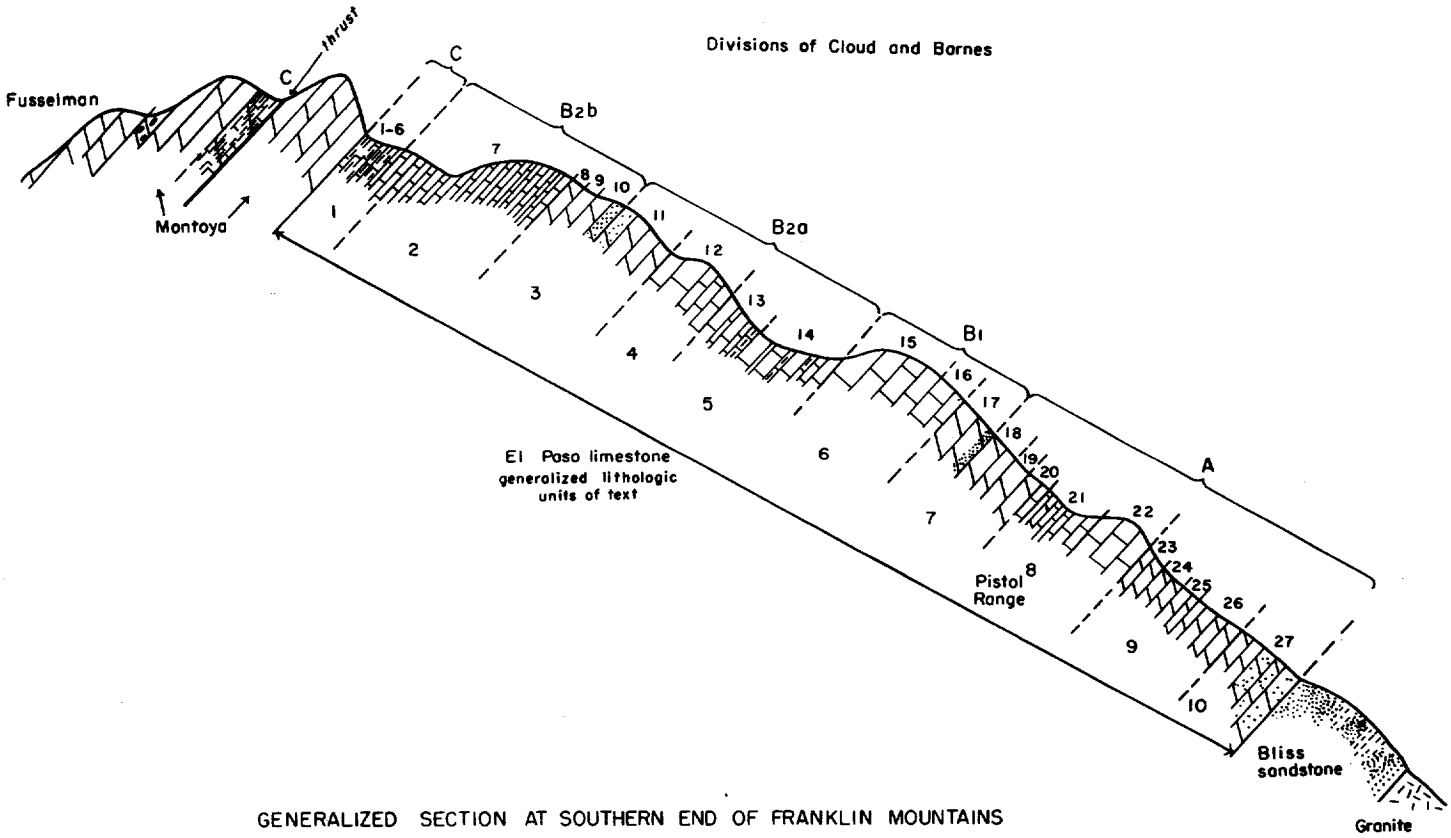

GENERALIZED SECTION AT SOUTHERN END OF FRANKLIN MOUNTAINS

FRANKLIN MOUNTAINS SECTION

by

Rousseau H. Flower

Granite

Granite, largely Precambrian, occurs in the lowest exposures of the Franklin Mountains. Richardson (1909, p. 7) cites evidence that some of the granite is intrusive: (1) its concentration at known faults, and (2) its apparent effect of cutting out the Bliss sandstone from the section in the middle of the Franklin Mountains.

Lanoria Quartzite

1800 feet of Precambrian quartzite. Will not be seen. Forms extensive areas of outcrop near Fusselman Canyon, but not exposed at the southern end of the Franklin Mountains.

Bliss Sandstone

The Bliss sandstone, 250 feet thick, is readily recognized at a distance in the Franklin Mountains as a dark weathering band between the reddish weathering granite below and the light grey weathering El Paso limestone above. The brownish sandstone has abundant cross bedding, some pebble layers, and frequent worm borings. Linguloid brachipods, not very diagnostic as to age, are the only fossils so far found in the Franklin Mountains. The occurrence of Ordovician fossils in the upper Bliss of Beach Mountain, Texas, was the basis for the supposition that the whole Bliss may be Ordovician. This is now opposed by the discovery of Franconian trilobites in the Bliss of New Mexico.

The upper part of the Bliss of the Franklin Mountains is of uncertain age. The thinness of the overlying Tanyard (Gasconade) equivalent, and the Beach Mountain occurrence suggest that the upper Bliss may be Ordovician, which is supported by the discovery of Ordovician fossils in the upper Bliss of New Mexico.

El Paso Limestone

Limestones, dolomites, and thin layers of dolomitic sandstone make up the El Paso. The dolomites are typically yellow to tan weathering with russet silicious

inclusions, while the limestones weather grey to white and bluish with red weathering chert. Cloud and Barnes (1946) recognize 1590 feet of El Paso. This may be excessive, but precise measurement is complicated by variations in dip, numerous faults, among which are strike faults, and some thrusting. The El Paso extends throughout the Canadian interval. The basal beds are known to be equivalent of the Tanyard and Gasconade, the highest beds are the equivalent of the Black Rock of Missouri and the Odenville of Alabama. The lithological succession is given here in a greatly abridged form, with the units and thicknesses of Cloud and Barnes (1946, p. 361-369).

1. Unit C – 36 feet of yellowish weathering thin-bedded granular limestones with some shaley beds. The fauna of this interval correlates with the Odenville limestone of Alabama and the highest Canadian.

2. Unit B2b – 220 feet of white weathering thin-bedded limestone, the upper part with abundant red chert, the lower part nearly free from chert. A few thin beds of dolomite.

3. Dolomite – 105 feet separated near the middle by a dolomite with coarse sand grains, and a bed above of fine cross-bedded dolomitic sandstone. The upper dolomites above this sand are grouped with the overlying limestones; the lower dolomites with the limestones beneath. The sand represents a probable formational break. Upper B2a and lower B2b of Cloud and Barnes. Dolomite weathers tan, sandy layer russet; upper dolomites have several black weathering layers.

4. Limestone – 65 feet white, grey, and bluish weathering; forming massive resistant beds, with some chert. Unit 12, division 13a, of Cloud and Barnes.

5. Limestone – 310 feet (?); less resistant, with layers separated by thin argillaceous limestone and in places shale. Chert is rare, the fauna meager. Lower B2b (Units 13-14) of Cloud and Barnes.

6. Limestones – 245 feet mainly massive, with abundant chert, piloceroids and sponges; much stromatolitic and detrital limestone. Forms the lower saddles in the limestone section. Upper B1 (Units 15-16) of Cloud and Barnes.

7. Dolomite – 275 feet, again with a sandy zone in the middle, and with the upper part apparently allied to the overlying, the base to the underlying limestones. Lower B1 and Upper A (Units 17-20) of Cloud and Barnes.

8. Limestones – 140 feet, thin-bedded above, massive below, with some dolomite in the middle and upper portion. Part of A (Units 21-22) of Cloud and Barnes.

9. Dolomites – 100 feet with fucoidal markings, pebble beds, and a fauna of gastropods and cephalopods. A (Units 23-24) of Cloud and Barnes.

10. Dolomites – 135 feet largely barren, with sandy layers increasing toward base. Only fossils indicate Tanyard (=Gasconade age). Lower A (Units 25-27) of Cloud and Barnes.

Montoya Limestone and Dolomite

250 feet, the lower part consists of massive beds of mottled light and dark grey limestone with no chert. It contains a fauna with conspicuous **Receptaculites, Maclurites,** (or **Maclurina**) and occasional large cephalopods and gastropods. This part of the section may be late Trenton. Richardson (1909, p. 4) suggested correlation with the Galena formation. The upper portion of the Montoya becomes more strongly dolomitic, and has yielded silicified fossils similar to those of the Aleman of New Mexico. This is the fauna currently regarded as Richmond.

Fusselman Dolomite

Massive dark colored dolomite. Richardson (1909, p. 4 gives a thickness of 1000 feet. The Fusselman in the Franklin Mountains has yielded pentameroids and corals of Middle Silurian aspect. (Higher Paleozoics are not exposed at the southern end of the Franklin Mountains).

Canutillo Formation

175 feet of sediments, Middle Devonian in age. The section consists of (a) cherty limestones at base, (b) thin fossiliferous grey limestone, (c) black brown weathering sandstone, (d) 40 feet of black fissle shale. (Nelson, 1940, p. 42).

MISSISSIPPIAN

The lower Mississippian Caballero and Lake Valley formations are absent in the Franklin Mountains.

Las Cruces Formation

60 feet of even-bedded black limestone in layers

6-18 inches thick.

Rancheria Formation

250 feet of thin-bedded black limestone, coarse-grained, with thin silty layers and occasional layers of detrital fossils.

Helms Formation

150 feet, shaly and silty beds, with occasional fossiliferous limy beds, mainly near the top. Recognizable by a characteristic yellow to light brown weathering. Archimedes and Pentremites. Chester in age, and the equivalent of the Paradise formation.

PENNSYLVANIAN-PERMAIN

La Tuna member of **Magdalena formation**-360 feet of limestones, largely massive and forming conspicuous ledges above the Helms formation (Nelson, 1950, p. 44-45) Berino member-545 feet of thin-bedded limestone with considerable shale. Contains an abundant molluscan fauna. Bishop's Cap member-628 feet of more massive limestone with some shaly interbeds. Upper Pennsylvanian and lower Hueco are not exposed.

Hueco Formation

The Hueco formation is exposed in some of the isolated hills on the east side of the Franklin Mountains, but its complete thickness is not shown. The limestones and the megafossils resemble those of the underlying Pennsylvanian, but the fusulines indicate Wolfcamp age. More than 650 feet thick (Nelson, 1950, p. 45).

CRETACEOUS

The lower Cretaceous section is exposed on the western edge of El Paso, and on both the Texas and New Mexico sides of the Rio Grande, and extends into Mexico. The section of Stanton and Vaughan (1896) is summarized with recent formation names from Nelson (1950) and the recent correlation chart of Cobban and Reeside (1952).

	Feet	Nelson	Cobban and Reeside
10. Marl	750	Eagle Ford	Colorado (Eagle Ford) shale Dakota (Woodbine)
9. Limestone	30-60	Buda	Buda
8. Shale	60	Del Rio	Del Rio
7. Limestone	125	Main Street Georgetown	Georgetown
6. Sandstone	30-60	Weno-Paw-Paw	Equivalents
5. Shale	90-150	Fort Worth-Denton	
4. Limestone	90-150	Duck Creek	Kiamichi
1-3. Limestone	125	Edwards Limestone	Edwards Limestone

Stanton and Vaughan (1896) regarded these beds as ranging from Fredericksburg to Washita without a break. Although the Eagle Ford and Colorado shale are regarded as the base of the Upper Cretaceous, Reeside's chart shows no serious time break.