

COLUMNAR SECTION

COLUMNAR SECTION OF THE SEDIMENTARY ROCKS OF THE BISBEE QUADRANGLE.						
SCALE: 1 INCH = 1000 FEET.						
SYSTEM.	SERIES.	FORMATION NAME.	SYMBOL.	COLUMNAR SECTION.	THICKNESS IN FEET.	CHARACTER OF ROCKS.
CRETACEOUS	COMANCHE (BISBEE GROUP)	Cintura formation.	Kc		1800+	Red nodular shales with cross-bedded, buff, tawny, and red sandstones; a few beds of impure limestone near base.
		Mural limestone.	Km		650	Thick-bedded, hard, gray, fossiliferous limestone. Thin-bedded, arenaceous, fossiliferous limestone.
		Morita formation.	Kmr		1800-2000+	Buff, tawny, and red sandstones and dark-red shales, with an occasional thin bed of impure limestone near the top.
		Glance conglomerate. UNCONFORMITY	Kg		25-500	Bedded conglomerate with rather angular pebbles, chiefly of schist and limestone. Rests on irregular surface of erosion.
CARBONIFEROUS	PENNSYLVANIAN	Naco limestone.	Cn		3000+	Principally light gray, compact limestone in beds of moderate thickness. Contains abundant fossils.
		Granite porphyry.	gp		Erupted into Carboniferous and older rocks.	
	MISSISSIPPIAN	Escabrosa limestone.	Ce	700	Thick-bedded white and light-gray limestone. Contains abundant crinoid stems.	
DEV.		Martin limestone. UNCONFORMITY?	Dm		340	Dark gray fossiliferous limestone in beds of moderate thickness.
CAMBRIAN		Abrigo limestone.	Ca		770	Thin-bedded, impure, cherty limestones.
		Bolsa quartzite.	Cb		430	Moderately thick, cross-bedded quartzites, with basal conglomerate.
	PRE-CAMBRIAN	Pinal schist.	ps			Sericite schists.

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FIG. 2.—BISBEE FROM SACRAMENTO HILL.
 Holbrook shaft in foreground; Czar shaft in middleground.

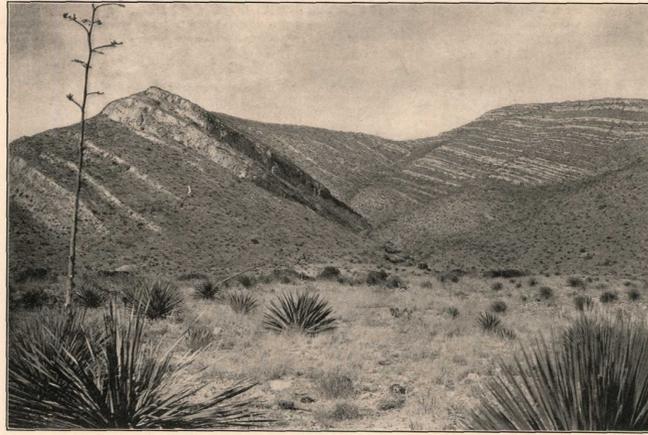


FIG. 3.—ESCABROSA LIMESTONE CONFORMABLY OVERLAIN BY NACO LIMESTONE, 1 MILE NORTH OF DON LUIS.
 The hill on the left is formed of Escabrosa limestone. The base of the Naco limestone outcrops about halfway up the slope on the right.



FIG. 4.—THE MOUNT MARTIN PALEOZOIC SECTION ON THE NORTHEAST SLOPE OF ESCABROSA RIDGE, WEST OF BISBEE.

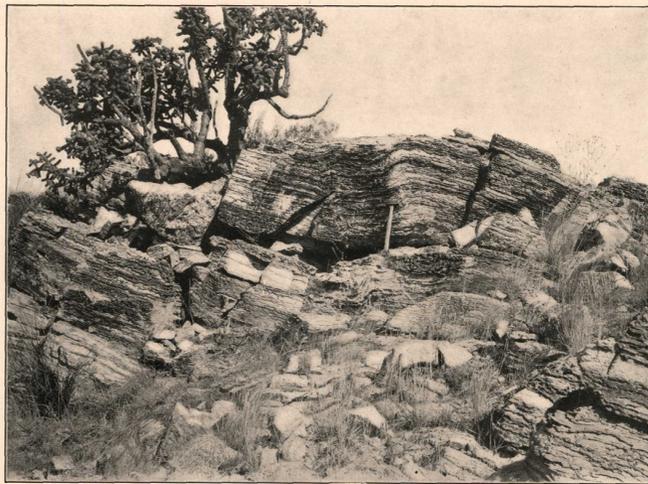


FIG. 5.—CHERTY BANDING OF ABRIGO LIMESTONE.



FIG. 6.—NACO HILLS FROM CREST OF ESCABROSA RIDGE.
 In the foreground, near the mouth of Escacado Canyon, are hills composed of faulted masses of Pinal schist and the various Paleozoic formations. In the distance, below the Naco Hills, to the west and southwest, is San Pedro Valley, stretching southward into Mexico. On the left appears an outlying spur of the San Jose Mountains, beyond which on a clear day may be seen the town of Cananea.



FIG. 7.—HILLS CARVED FROM CRETACEOUS BEDS EAST OF BISBEE.
 View is northward across Mule Gulch. The prominent white band is the upper member of the Mural limestone, forming the top of Mural Hill on the left and showing the dislocation due to the Mexican Canyon fault.

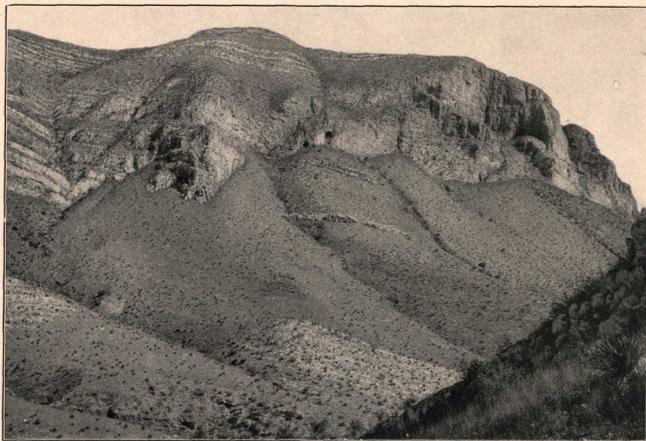


FIG. 8.—DETAIL OF FAULTED STRUCTURE ON THE EAST SIDE OF ESCABADO CANYON.
The cliffs are formed of Escabrosa limestone, overlain by Naco limestone. The slope below is underlain by Martin and Abrigo limestones, behind which the Escabrosa has been dropped by faults along the base of the cliffs. In the foreground are knolls of Escabrosa limestone, which has been faulted down against the Abrigo.



FIG. 9.—GLANCE CONGLOMERATE RESTING UPON IRREGULARLY ERODED NACO LIMESTONE, 1 MILE NORTHEAST OF BLACK GAP.
The conglomerate is thickest at the left and thinnest in the saddle on the right. The summit of Gold Hill is visible through the saddle.

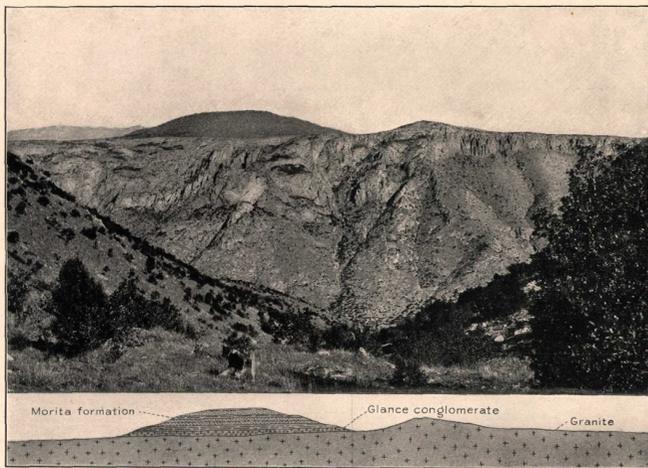
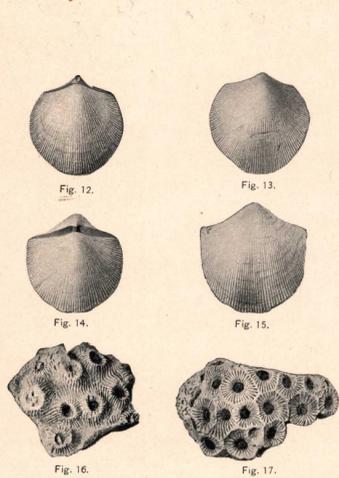


FIG. 10.—GRANITE MASS OF JUNIPER FLAT FROM ESCABOSA RIDGE.
Shows outliers of Cretaceous strata resting upon an even surface of erosion.



FIG. 11.—GOLD HILL FROM THE NORTHWEST, SHOWING OVERTHRUST FAULT.



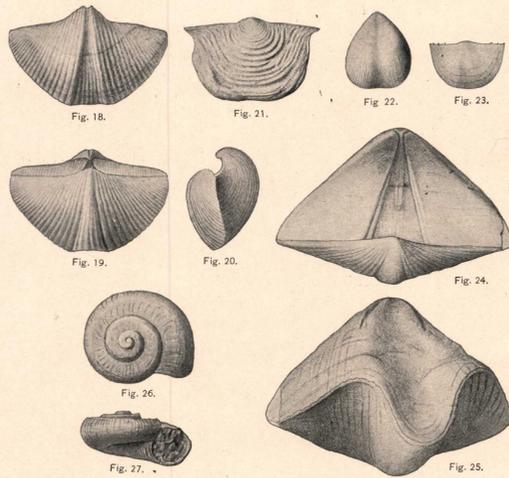
FOSSILS CHARACTERISTIC OF THE MARTIN LIMESTONE (DEVONIAN).

Devonian.

- Fig. 12. *Atrypa reticularis*.—Dorsal view.
- Fig. 13. *Atrypa reticularis*.—Ventral view of larger specimen.
- Fig. 14. *Spirifer hungerfordi*.—Ventral view.
- Fig. 15. *Spirifer hungerfordi*.—Dorsal view of larger specimen.
- Fig. 16. *Pachyphyllum woodmani*.—Composite corallum showing several corallites, natural size.
- Fig. 17. *Acravulata davidsoni*.—Colony showing wall separating individual corallites, natural size.

Mississippian.

- Fig. 18. *Spirifer centronatus*.—Ventral view.
- Fig. 19. *Spirifer centronatus*.—Dorsal view.
- Fig. 20. *Spirifer centronatus*.—Side view. This species is common in the Escabrosa limestone. Forms similar to it, however, are also found in the Pennsylvanian.
- Fig. 21. *Leptæna rhomboidalis*.—Ventral valve.
- Fig. 22. *Rhapidomella thiermei*.—Ventral valve. Very characteristic of the Escabrosa limestone.



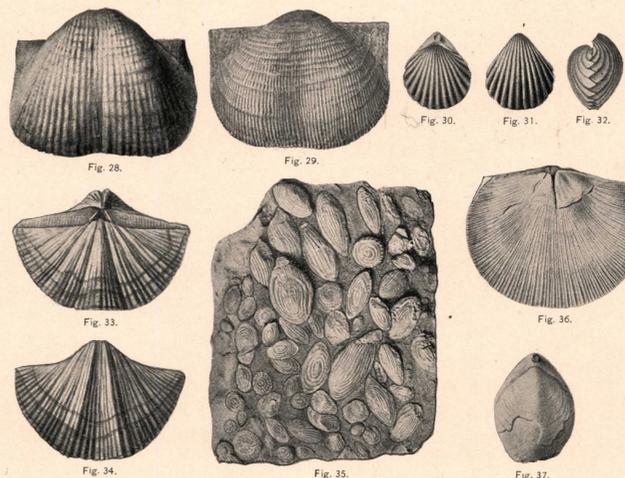
FOSSILS CHARACTERISTIC OF THE ESCABOSA LIMESTONE (MISSISSIPPIAN).

Mississippian—Continued.

- Fig. 23. *Chonetes loganensis*.—Ventral valve. This species is very characteristic of the Escabrosa limestone.
- Fig. 24. *Syringothyris carteri*.—Posterior view.
- Fig. 25. *Syringothyris carteri*.—Anterior view.
- Fig. 26. *Strophomena luxus*.—Seen from above.
- Fig. 27. *Strophomena luxus*.—Side view. This is a small specimen. The genus occurs in the Pennsylvanian, but not the same species.

Pennsylvanian.

- Fig. 28. *Productus semireticulatus*.—Ventral valve. This species is common in the Naco limestone, but does not occur in the Mississippian.
- Fig. 29. *Productus inflatus*.—Ventral valve.
- Fig. 30. *Hustedia mormoni*.—Dorsal view. Enlarged 1½ times.
- Fig. 31. *Hustedia mormoni*.—Ventral view. Enlarged 1½ times.
- Fig. 32. *Hustedia mormoni*.—Side view. This form is peculiar to the Pennsylvanian.



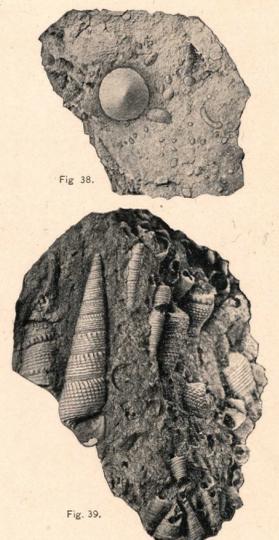
FOSSILS CHARACTERISTIC OF THE NACO LIMESTONE (PENNSYLVANIAN).

Pennsylvanian—Continued.

- Fig. 33. *Spirifer cameratus*.—Dorsal view.
- Fig. 34. *Spirifer cameratus*.—Ventral view.
- Fig. 35. *Fusulina cylindrica*.—A block of limestone containing a number of specimens partly weathered. Enlarged 2 times.
- Fig. 36. *Derbya crassa*.—Ventral valve. The specimen is weathered, so that the vertical plate on the inside of this valve is shown. This form is often abundant in the Naco limestone, but does not occur at all in the Mississippian. A form resembling it very closely is found in the Escabrosa limestone, but it is without the vertical plate, which of course does not show on the outside of the shell.
- Fig. 37. *Seminula subtilis*.—Dorsal view. An elongated specimen of medium size.

Cretaceous.

- Fig. 38. *Orbitulina texana*.—Enlarged 2 diameters.
- Fig. 39. *Turritella* sp.—Enlarged 1½ diameters.



FOSSILS CHARACTERISTIC OF THE BISBEE GROUP (CRETACEOUS).