DIVISION OF MINES
Ian Campbell, Chief

STATE OF CALIFORNIA
Edmund G. Brown, Governor

DEPARTMENT OF NATURAL RESOURCES
DeWitt Nelson, Director

EXPLANATORY DATA

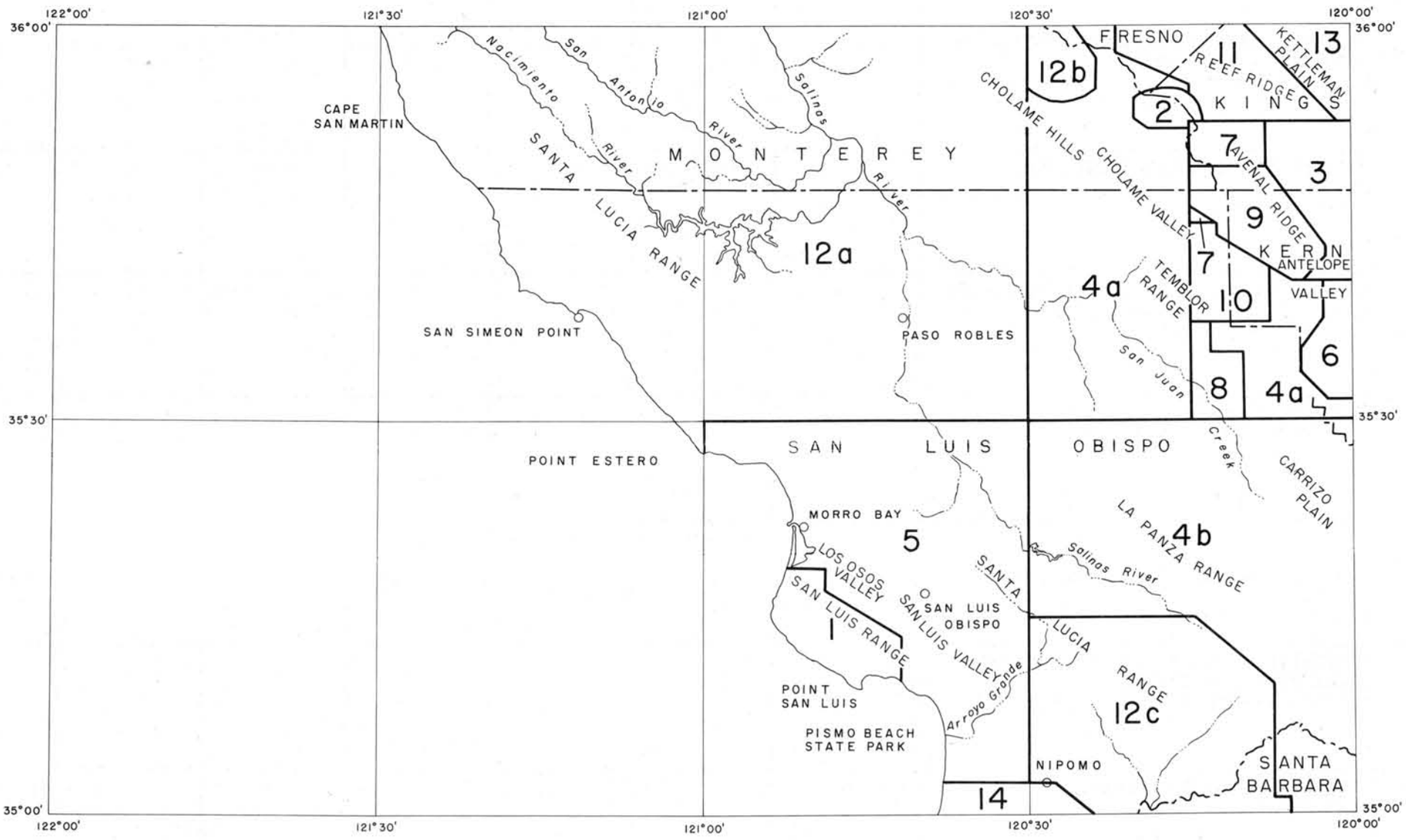
SAN LUIS OBISPO SHEET

GEOLOGIC MAP OF CALIFORNIA

OLAF P. JENKINS EDITION
Compiled by Charles W. Jennings, 1958

INDEX TO GEOLOGIC MAPPING

USED IN COMPILATION OF THE SAN LUIS OBISPO SHEET



1. Anonymous, Western portion of Pismo basin, San Luis Obispo County, scale 1″ = 2,000 feet, unpublished (1954).

2. Bailey, Edgar H., 1942, Quicksilver deposits of the Parkfield district, California: U. S. Geol. Survey Bull. 936-F, pp. 143-169, Pl. 19: Geologic map and section of the Table Mountain area, scale 1:31,680.

3. Brooks, T. J., 1955, Spring field trip Devils Den–McLure Valley area, California: S.E.P.M.–A.A.P.G., 4 pp., Map: Geologic map Pyramid Hills–Devils Den area, scale 1″ = 4,000 feet.

4a. Dibblee, Thomas W., Jr., Geologic map of the Cholame quadrangle, California, Scale 1:125,000, unpublished.

4b. Dibblee, Thomas W., Jr., Geologic maps of the Pozo, La Panza, and part of Branch Mtn. quadrangles, scale 1: 62,500, unpublished.

5. Fairbanks, H. W., 1904, San Luis Folio, California: U. S. Geol. Survey Geologic Atlas (No. 101), 14 pp., Map: Areal Geology sheet, scale 1:125,000.

(Faults interpreted from Fairbanks cross-sections and data from J. O. Kistler, and L. A. Tarbet, Standard Oil Company of California. Quaternary geology in Morro Bay area and Nipomo area modified by C. W. Jennings, California Division of Mines.)

*6. Heikkila, Henry H., and MacLeod, George M., 1951, Geology of Bitterwater Creek area, Kern County, California: California Division Mines Special Rept. 6, 21 pp., Pl. 1: Topographic and geologic map of the Bitterwater Creek area, Kern County, California, scale 1: 31,680.

*7. Herrera, Leo J., Jr., Geology of the Tent Hills quadrangle, scale 1:31,680, University of California, Berkeley, unpublished Masters thesis, 1950.

*8. Herron, Robert F., Geologic map of Highland-San Juan area, scale 1:62,500, unpublished (1948).

9. Marsh, Owen T., Geology of the Orchard Peak area, scale 1:31,680, Stanford University, unpublished Ph. D. thesis, 1954.

10. Peryam, Richard C., Geology of the Annette quadrangle, San Luis Obispo and Kern Counties, California, scale 1:31,680, University of California, Berkeley, unpublished M.A. thesis, 1949.

*11. Stewart, Ralph, 1946, Geology of Reef Ridge, Coalinga district, California: U. S. Geol. Survey Prof. Paper 205-C, pp. 81-115, Pl. 9: Geologic map and sections of Reef Ridge and parts of adjoining regions, Coalinga district, California, scale 1:31,680.

*12a. Taliaferro, N. L., (and summer field classes), Geologic maps of the Adelaida, Bradley, Bryson, Cape San Martin, Paso Robles, Piedras Blancas, San Miguel, and San Simeon quadrangles, scale 1:62,500, University of California, Berkeley, (compiled in 1957 by R. E. Turner), unpublished.

(Faults in San Antonio River area from L. A. Tarbet, Standard Oil Company of California.)

Taliaferro, N. L., 1943, Bradley-San Miguel district: California Div. Mines Bull. 118, pp. 456-462, Fig. 189: Bradley and San Miguel quadrangles, geologic map, scale approx. 5/16″ = 1 mile.

Taliaferro, N. L., 1944, Cretaceous and Paleocene of Santa Lucia Range, California: Amer. Assoc. Petroleum Geologists Bull., vol. 28, pp. 449-521, Fig. 9: Map of parts of Adelaida, Bradley, Bryson and San Simeon quadrangles, scale approx. 1-1/16″ = 1 mile.

12b. Taliaferro, N. L. (and summer field classes), Geologic map of northern part of Parkfield quadrangle, scale 1: 31,250, University of California, Berkeley, unpublished.

*12c. Taliaferro, N. L. (and summer field classes), Geologic maps of Nipomo and part of Branch Mtn. quadrangle, scale 1:62,500: University of California, Berkeley, unpublished. (Modified in part by J. O. Kistler, Standard Oil Company of California.)

Taliaferro, N. L., 1943, Geology of Huasna area: California Div. Mines Bull. 118, pp. 443-447, Fig. 185: Huasna area, geologic map, scale approx. ½″ = 1 mi.

13. Woodring, W. P., Stewart, Ralph, and Richards, R. W., 1940, Geology of the Kettleman Hills oil field, California, stratigraphy, paleontology, and structure: U. S. Geol. Survey Prof. Paper 195, 170 pp., Pl. 3: Geologic map of the Kettleman Hills, California, scale 1:31,680.

14. Worts, G. F., Jr., 1951, Geology and ground-water resources of the Santa Maria Valley area, California: U. S. Geol. Survey Water-Supply Paper 1000, 169 pp., Pl. 1: Geologic map of the Santa Maria Valley area, Santa Barbara County, California, scale 1:63,360.

* Modified by T. W. Dibblee, Jr.

For a complete list of published geologic maps of this area see California Div. Mines Special Report 52.

Aerial view northwestward along axis of McLure Valley syncline. Pliocene Jacalitos formation in center middleground flanked by upper Miocene McLure shale and Upper Cretaceous Panoche sandstone and shale. *Photo by John S. Shelton.*

STRATIGRAPHIC NOMENCLATURE — SAN LUIS OBISPO SHEET

LEGEND
SAN LUIS OBISPO SHEET

DATA FROM SELECTED PUBLISHED SOURCES
USED TO COMPILE THE SAN LUIS OBISPO SHEET
Numbers Refer to Index on Reverse Side of Sheet

AGE	STATE MAP SYMBOL	STATE MAP UNIT	• Brooks 3	Fairbanks 5	Heikkila & MacLeod 6	Stewart 11	Taliaferro 12a (In part unpublished)	Taliaferro 12c	Woodring, Stewart & Richards 13	Worts 14
CENOZOIC — QUATERNARY — Recent	Qs	**RECENT SAND DUNES** (Dune sand)								Dune sand
CENOZOIC — QUATERNARY — Recent	Qal	**RECENT ALLUVIUM** (Alluvium, river channel deposits)		Alluvium and stream gravel			Alluvium	Alluvium		River-channel deposits, alluvium
CENOZOIC — QUATERNARY — Recent	Qf	**RECENT ALLUVIAL FAN DEPOSITS IN THE GREAT VALLEY** (Sediments deposited from streams emerging from high lands surrounding the Great Valley)	Alluvium		Alluvium	Alluvium			Younger alluvium	
CENOZOIC — QUATERNARY — Recent	Qt	**RIVER AND STREAM TERRACE DEPOSITS** (Terrace deposits)		Terrace deposits (and dune sand)	Terrace gravels		Terraces			Terrace deposits
CENOZOIC — QUATERNARY — Pleistocene	Qm	**PLEISTOCENE MARINE DEPOSITS AND MARINE TERRACE DEPOSITS** (Marine terrace deposits)					Marine terrace deposits			
CENOZOIC — QUATERNARY — Pleistocene	Qc	**PLEISTOCENE NONMARINE SEDIMENTARY DEPOSITS** (Orcutt fm.)								Orcutt fm.
CENOZOIC — QUATERNARY — Pleistocene	QP	**PLIOCENE-PLEISTOCENE NONMARINE SEDIMENTARY DEPOSITS** (McKittrick fm., Paso Robles fm., Tulare fm.)	Tulare fm.	Paso Robles fm.	Tulare fm.	Tulare fm.	Paso Robles		Tulare fm.	
CENOZOIC — QUATERNARY — Pliocene	Pc	**UNDIVIDED PLIOCENE NONMARINE SEDIMENTARY ROCKS** (Morales fm., unnamed Pliocene nonmarine beds)								
CENOZOIC — QUATERNARY — Pliocene	Pu	**UPPER PLIOCENE MARINE SEDIMENTARY ROCKS** (San Joaquin fm.)	San Joaquin Clay			San Joaquin fm.			San Joaquin fm.	
CENOZOIC — TERTIARY — Pliocene	Pml	**MIDDLE AND LOWER PLIOCENE MARINE SEDIMENTARY ROCKS** (Etchegoin fm.[1] Etchegoin-Jacalitos fm. undifferentiated, Jacalitos fm., Pancho Rico fm. [in part upper Miocene])	Etchegoin fm.			Etchegoin fm., Jacalitos fm.	Etchegoin-Jacalitos fm. undifferentiated	Pliocene, chiefly sands and silts	Etchegoin	
CENOZOIC — TERTIARY — Miocene	Mc	**UNDIVIDED MIOCENE NONMARINE SEDIMENTARY ROCKS** (Unnamed Miocene continental rocks)					Unnamed Miocene continental red-beds and volcanic rocks			
CENOZOIC — TERTIARY — Miocene	Mu	**UPPER MIOCENE MARINE SEDIMENTARY ROCKS** (Antelope shale, member of Monterey fm., McDonald shale, McLure shale member of Monterey fm., Pismo fm., Reef Ridge shale, Santa Margarita fm.)	McLure shale, McDonald shale	Pismo fm., Santa Margarita fm.	McDonald shale	McLure shale member of Monterey shale and Reef Ridge shale	Santa Margarita, McLure shale	Santa Margarita		
CENOZOIC — TERTIARY — Miocene	Mm	**MIDDLE MIOCENE MARINE SEDIMENTARY ROCKS** (Alferitz fm., "Buttonbed" sandstone, Escuda sandstone, Gould-Devilwater shale, Monterey shale [in part upper Miocene], Point Sal fm., Salinas shale, Twisselman sandstone member of Monterey fm.)	Escuda sand	Monterey shale	Twisselmann sandstone member of Monterey fm., Gould-Devilwater shale, "Buttonbed" sandstone		Monterey fm., Salinas shale	Shale (lower & middle Miocene)		
CENOZOIC — TERTIARY — Miocene	Ml	**LOWER MIOCENE MARINE SEDIMENTARY ROCKS** (Agua sandstone, Carneros sandstone, Hannah fm., Media shale, Rincon fm., Sandholt fm., Santos shale, Temblor fm. [middle Miocene in part], Vaqueros sandstone)	Temblor-Vaqueros fm.	Vaquero sandstone	Media shale, Carneros ss, Upper Santos shale, Agua sandstone	Temblor sandstone	Vaqueros	Vaqueros sandstone		
CENOZOIC — TERTIARY — Miocene	Mv Mv[a] Mv[b] Mv[p]	**MIOCENE VOLCANIC ROCKS: UNDIFFERENTIATED—Mv; ANDESITIC—Mv[a]; BASALTIC—Mv[b]; PYROCLASTIC—Mv[p]** (Undifferentiated volcanic rocks, teschenite—Mv; andesite—Mv[a]; diabase—Mv[b]; Obispo tuff, rhyolite tuff—Mv[p])		Augite-teschenite—Mv, pyroxene andesite—Mv[a], olivine diabase—Mv[b], rhyolite tuff—Mv[p]			Undifferentiated rhyolite tuff and diabase sills interbedded in Monterey fm.—Mv			
CENOZOIC — TERTIARY — Oligocene	ϕc	**OLIGOCENE NONMARINE SEDIMENTARY ROCKS** (Berry conglomerate)								
CENOZOIC — TERTIARY — Eocene	E	**EOCENE MARINE SEDIMENTARY ROCKS** (Avenal sandstone, Canoas siltstone, Gredal fm., Kreyenhagen shale, Mabury fm., Point of Rocks sandstone, Welcome fm.)	Kreyenhagen shale, Point of Rocks sandstone, Canoas siltstone Avenal sandstone		Kreyenhagen shale, Point of Rocks sandstone	Kreyenhagen shale, Avenal sandstone				
CENOZOIC — TERTIARY — Paleocene	Ep	**PALEOCENE MARINE SEDIMENTARY ROCKS** (Dip Creek fm.)					Dip Creek fm.			
CENOZOIC — TERTIARY — Undivided	Ti	**TERTIARY INTRUSIVE ROCKS** (Plugs and dikes of quartz porphyry, andesite and dacite.)		Andesite-granophyre[2] dacite-granophyre[2]			Middle Miocene intrusive dacite	Quartz porphyry plugs and dikes		

STRATIGRAPHIC NOMENCLATURE — Continued

AGE	STATE MAP SYMBOL	STATE MAP UNIT	Brooks 3	Fairbanks 5	Heikkila & MacLeod 6	Stewart 11	Taliaferro 12a (In part unpublished)	Taliaferro 12c	Woodring, Stewart & Richards 13	Worts 14
CRETACEOUS	K	**UNDIVIDED CRETACEOUS MARINE SEDIMENTARY ROCKS** (Unnamed undivided Cretaceous of Table Mt. area)			Cretaceous undifferentiated			Cretaceous undifferentiated		
CRETACEOUS	Ku	**UPPER CRETACEOUS MARINE SEDIMENTARY ROCKS** (Asuncion group, Atascadero fm., Jack Creek fm., Moreno fm., Panoche fm.)	Moreno fm.	Atascadero fm.		Panoche fm.	Asuncion group, Jack Creek fm.			
CRETACEOUS	Kl	**LOWER CRETACEOUS MARINE SEDIMENTARY ROCKS** (Marmolejo fm., Toro fm.)		Toro fm.			Marmolejo fm.			
MESOZOIC	KJf	**FRANCISCAN GROUP** (Franciscan fm., San Luis fm.)		Franciscan "San Luis" fm. (sandstone, conglomerate, shale and schist)		Franciscan fm. (sandstones, and volcanic and metamorphic rocks)	Franciscan fm. (sandstone, shale, chert, schist)			Franciscan and Knoxville(?) fms. (sandstone, shale, chert, serpentine and schist)
MESOZOIC	KJfv	**FRANCISCAN VOLCANIC AND METAVOLCANIC ROCKS** (Cuesta diabase, Osos basalt, altered volcanic rocks)		Cuesta diabase, Osos basalt, diabase and other basic rocks			Franciscan volcanic rocks			
MESOZOIC	gr	**MESOZOIC GRANITIC ROCKS** (Santa Lucia quartz diorite, granite)		Granite			Granitic rocks (considered by N. L. T. to be pre-Franciscan, probably Precambrian			
MESOZOIC	ub	**MESOZOIC ULTRABASIC INTRUSIVE ROCKS** (Serpentine, peridotite, pyroxenite, norite, gabbro)		Serpentine and related rocks			Serpentine and related ultrabasic rocks			
JURASSIC	Jk	**KNOXVILLE FORMATION** (Knoxville fm.)					Knoxville fm.			
PALEOZOIC UNDIVIDED	m ls	**PRE-CRETACEOUS METAMORPHIC ROCKS, UNDIFFERENTIATED,** ls = **LIMESTONE** (Sur series, complex of metamorphic and granitic rocks—m; Gabilan limestone and dolomite lenses—ls)					Sur series—m; Gabilan limestone—ls			

NOTES

[1] Etchegoin fm.: mostly middle Pliocene; locally grades upward into overlying nonmarine Paso Robles formation and contains upper Pliocene beds.
[2] Considered to be of Cretaceous age by Fairbanks; correlated by Taliaferro with Miocene plugs and dikes to north.

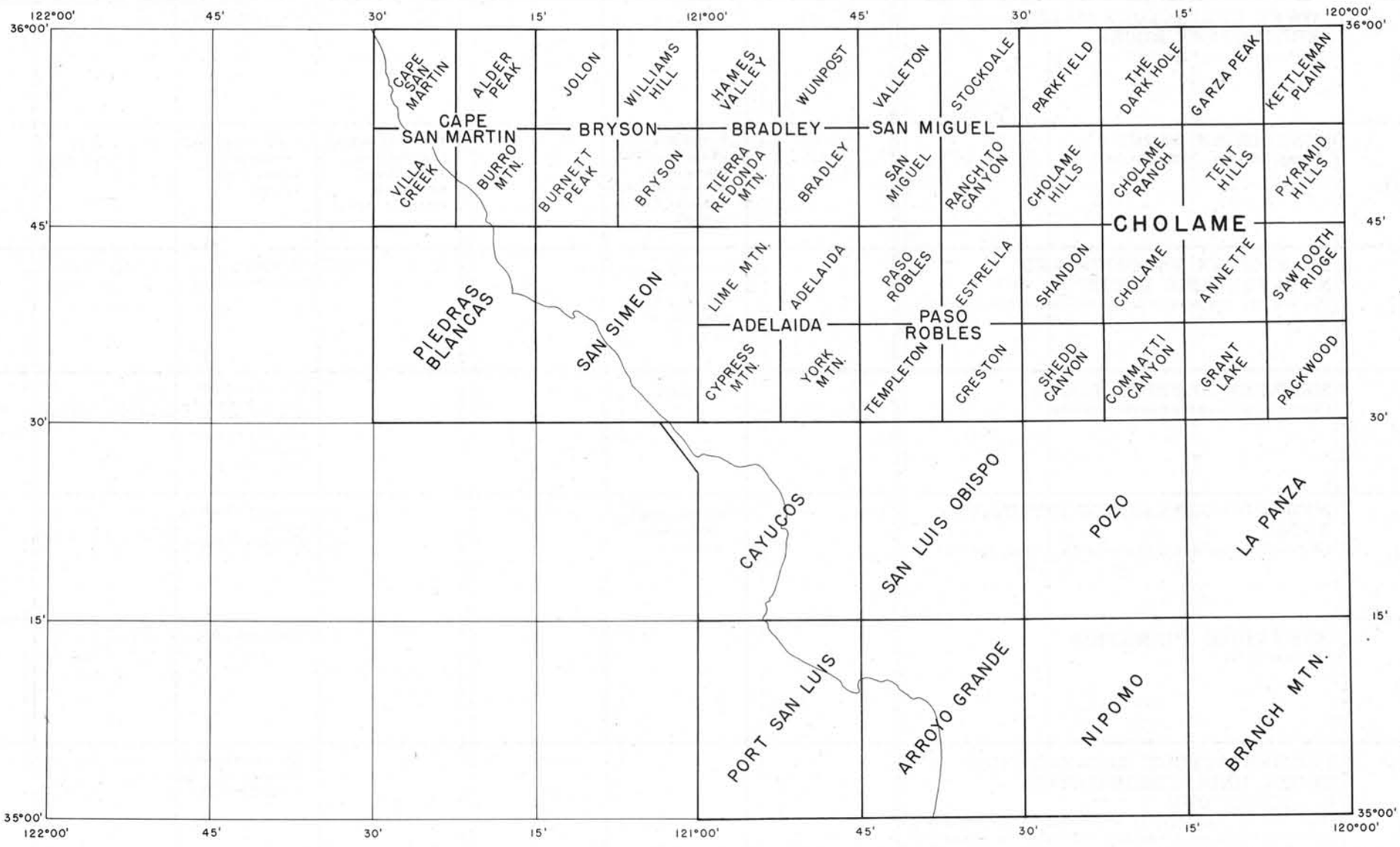
View southward to Morro Bay on the San Luis Obispo coast. Morro Rock, a seastack on the extreme right, is one of a group of aligned volcanic plugs appearing as dark hills in the middleground. Beyond Morro Rock, a baymouth bar separates Morro Bay from the open Pacific Ocean. Franciscan formation and associated serpentine intrusive rocks are exposed in the foreground. The dissected San Luis Range in the distance is composed largely of the Monterey formation. *Photo by John S. Shelton.*

TOPOGRAPHIC QUADRANGLES

WITHIN THE SAN LUIS OBISPO SHEET

AVAILABLE FROM THE U. S. GEOLOGICAL SURVEY

1958



View south along crest of Reef Ridge toward Pyramid Hills and San Joaquin Valley. Resistant Temblor sandstone forms crest of dark ridge in foreground (A), while light ridge in middleground (B), is composed of unconformably overlying Monterey shale. Younger Pliocene formations extend toward Kettleman Plain on left. *Photo by John S. Shelton.*

△95315 4-59 6M