69°30' 15' 69°00'
20°15' 20°15'
30' 30'
20°45' 15' 20°45'
69°30' 69°00'

EXPLANATION

QUATERNARY

- Qal — Alluvial deposits
- Qev — Saline deposits
- Qe — Eolian sand
  Showing trend of dune crest
- Qpl — Piedmont (fanglomerate) deposits
- Qd — Landslide deposits
- Qt — Terrace deposits
- Qtp — Older terrace deposits
- Qc — Travertine deposits

ALTOS DE PICA FORMATION

TERTIARY AND QUATERNARY

Miocene to Pleistocene

- QTa5 — Member 5, Sand and gravel
- QTa4 — Member 4, Welded tuff and ash
- QTa3 — Member 3, Sandstone and conglomerate
- QTa2 — Member 2, Welded tuff and ash
- QTa1 — Member 1, Conglomerate, sandstone, and tuff

UNCONFORMITY

CERRO EMPEXA FORMATION

CRETACEOUS

Berriasian and Santonian?

- Kce3 — Member 3, Trachyte and breccia
- Kce2 — Member 2, Mudstone, sandstone, and gypsum
- Kce1 — Member 1, Trachyte and breccia

UNCONFORMITY

CHACARILLA FORMATION

JURASSIC

Oxfordian

- Jch — Mudstone, shale, sandstone, and lava

LONGACHO FORMATION

Lotharingian–Sinemurian

- Jl — Mudstone, shale, sandstone, and limestone
- Ji — Granite rocks
- Dikes
  Undifferentiated intrusives
- Contact
  Dashed where approximately located
- Disconformity contact
  (In geologic sections only). Dashed where approximately located
- Fault
  Showing relative movement. Dashed where approximately located; dotted where concealed; queried where probable. U, *upthrown side;* D, *downthrown side*
- Anticline
  Showing trace of axial plane and plunge of axis. Dashed where approximately located
- Syncline
  Showing trace of axial plane and plunge of axis. Dashed where approximately located
- Inferred monocline
  Showing trace of axis
- 55 — Strike and dip of beds
- 65 — Strike and dip of overturned beds
- 90 — Strike of vertical beds
- 160 — Well
  Number listed in table of well records
- Spring
- Gallery mouth
- 1712 — Altitude, in meters
- Low scarp

Topographic base compiled in 1958 from aerial photographs. Based on triangulation net of the Instituto Geográphica Militar, Santiago, Chile

5° APPROXIMATE MEAN DECLINATION, 1965 — TRUE NORTH — MAGNETIC NORTH

SCALE 1:100 000

2 1 0 2 4 6 8 KILOMETERS

2 1 0 2 4 6 8 MILES

CONTOUR INTERVAL 100 METERS
DATUM IS MEAN SEA LEVEL

Geology mapped in 1956–57 by Carlos Galli Olivier and Robert J. Dingman. Assisted by Octavio Castillo and Alfonso Freile. Prepared in cooperation with the Instituto de Investigaciones Geologicas de Chile under the auspices of the Agency for International Development, U.S. Department of State.

A A′

4400m 4000m 3000m 2000m 1000m 600m

Pampa del Tamarugal — SIERRA DEL LONGACHO — Pampa Pica — ALTOS DE PICA

Vertical scale 1:40 000

B B′

3500m 2700m 1700m

CHACARILLA ANTICLINE — LA CUESTA DE LIPEZ ANTICLINE — HIGUERITAS SYNCLINE — QUEBRADA CHACARILLA

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965—W64149

GEOLOGIC MAP AND SECTIONS OF THE PICA QUADRANGLE, TARAPACA PROVINCE, CHILE