TED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER-SUPPLY PAPER 1419
PLATE 1

EXPLANATION

Qaf — **River-channel deposits**
Unconsolidated coarse gravel, sand, and silt in major river channels; highly permeable, largely unsaturated, but transmits large seepage losses from rivers and streams to the main water body

LOCAL UNCONFORMITY

Qds — **Dune sand**
Unconsolidated coarse to fine sand, generally anchored by vegetation but in part actively drifting

LOCAL UNCONFORMITY

Qyal — **Younger alluvium**
Unconsolidated coarse gravel, sand, silt and clay; consists of two units in the San Bernardino Valley which are in places interlensing and overlap: the upper unit is the unconsolidated water-bearing deposits where within the zone of water-level fluctuations is highly permeable and yields water copiously to wells

Qoal — **Older alluvium**
Unconsolidated coarse gravel, sand, silt, and clay, in places deeply weathered with red and yellow soil zones; locally contains thick clay beds which confine underlying aquifers; fractured by numerous faults and in places slightly folded, yields water copiously to wells that penetrate permeable members

LOCAL UNCONFORMITY

QTc — **Quaternary and Tertiary continental deposits**
Unconsolidated to cemented gravel, sand, silt, and clay; locally contains a mammalian fauna; yields water in moderate quantities to wells that penetrate permeable members

UNCONFORMITY

bc — **Basement complex**
Consolidated metamorphic and igneous rocks, principally diorite, and lesser amounts of quartz monzonite, gneiss, schist, diorite and granitic gneiss, marble, and other metamorphic rocks; essentially not water bearing

Pleistocene, Pliocene, Pleistocene and Recent — QUATERNARY
TERTIARY
PRE-TERTIARY

Contact
Dashed where indefinite or gradational

Fault, showing dip
Dashed where approximately located, dotted where concealed, queried where doubtful. U, upthrown side; D, downthrown side. Arrows show relative movement

Strike and dip of beds

Ground-water barrier
Queried where physical nature of barrier unknown or uncertain

SAN BERNARDINO MOUNTAINS
SAN GABRIEL MOUNTAINS
SAN ANDREAS FAULT
CUCAMONGA FAULT SYSTEM
SAN JACINTO FAULT
LOMA LINDA FAULT
SAN JACINTO FAULT ZONE
SAN TIMOTEO CANYON
SAN TIMOTEO BADLANDS
SAN MANUEL INDIAN RESERVATION
SAN BERNARDINO
RIVERSIDE
FONTANA
BLOOMINGTON
HIGHGROVE
CRAFTON HILLS
BOX SPRINGS MOUNTAINS
JURUPA MOUNTAINS
SAN TIMOTEO CANYON
SANTA ANA RIVER
LOWER SANTA ANA RIVER BASIN
UPPER SANTA ANA RIVER BASIN
SAN JACINTO BASIN
SAN JACINTO VALLEY
SAN BERNARDINO BASIN AREA
RIALTO BASIN
COLTON BASIN
RIVERSIDE BASIN
BEAUMONT PLAIN
SAN TIMOTEO BADLANDS

Geology by L. C. Dutcher

Compiled from U. S. Geological Survey topographic quadrangles

GEOLOGIC MAP AND SECTIONS OF THE SAN BERNARDINO AREA, CALIFORNIA

SCALE 1:31 680

1 MILE ½ 0 1 MILE

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION 1961

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—10082