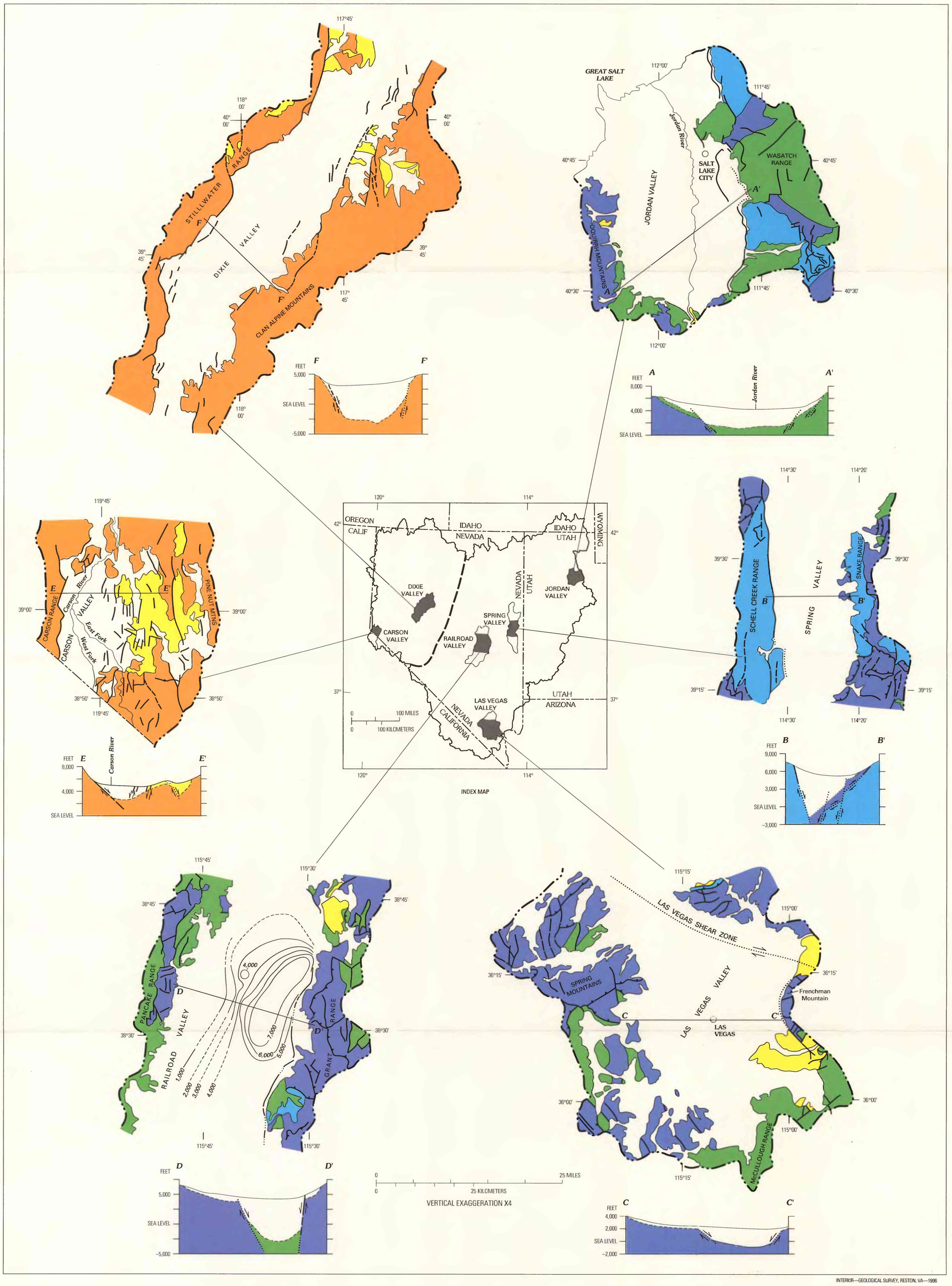
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1409–B
Maps and cross sections—PLATE 3
Plume, R.W., 1996, Hydrogeologic framework of the Great Basin region, Nevada, Utah, and adjacent states



EXPLANATION

BASIN-FILL DEPOSITS

Geometries of basin fill shown on geologic sections based on published interpretations of geophysical data (see mapping credits), except for Railroad Valley section, which is based on lines of equal depth to bedrock shown on this plate

Younger basin fill (Holocene to Pliocene)—Consolidated to semiconsolidated, poorly sorted to well-sorted, coarse- to fine-grained deposits of alluvial fans, pediments, flood plains, lowlands, playas, and Pleistocene lakes. Deposits are erosion products from present-day mountain ranges. Alluvial fans and pediments usually underlain by coarse-grained deposits whereas lowlands and playas are underlain by interbedded coarse- and fine-grained deposits or by heterogeneous mixtures of the two. Flood plains are underlain by sorted sequences of interbedded coarse- and fine-grained deposits

Older basin fill (Pliocene and Miocene)—Conglomerate, sandstone, siltstone, mudstone, freshwater limestone, evaporite beds, water-laid tuff, and interbedded lava flows. Unit exists mainly along basin margins and within mountain blocks. In most basins, this unit is thought to underlie younger basin fill at depth. However, geologic sections on this plate do not show extent of older fill at depth because position of contact between older and younger units is unknown

Consolidated rocks, western Great Basin

Sedimentary and igneous rocks (Quaternary to Precambrian)—Includes marine sedimentary and volcanic rocks, continental sedimentary rocks, igneous intrusions, and continental volcanic rocks

Consolidated rocks, eastern Great Basin

Sedimentary and igneous rocks (Quaternary to Middle Triassic)—Includes continental fluvial, lacustrine, and eolian deposits; marine clastic and carbonate sedimentary rocks; marine and continental volcanic rocks; and igneous intrusions

Carbonate and clastic sedimentary rocks (Early Triassic to Middle Cambrian)—Mostly limestone and dolomite (silty or sandy in places) with interbedded shale, sandstone, and conglomerate

Metamorphic, igneous, and sedimentary rocks (Lower Cambrian and upper Precambrian)—Gneiss, schist, and granite (Precambrian crystalline basement) and overlying quartzite, sandstone, and shale

Contact—Dashed where approximately located; dotted where inferred

High-angle fault—Dashed where approximately located; dotted where inferred

Low-angle fault—Dashed where approximately located; dotted where inferred. Sawteeth on upper plate. Includes thrust faults in Las Vegas Valley and extensional faults in Railroad and Spring Valleys

Fault—Dashed where approximately located; dotted where inferred. Arrows indicate relative direction of movement. Includes strike-slip fault in Las Vegas Valley and faults on geologic sections

1,000 **Line of equal depth to bedrock**—In Railroad Valley, dashed where approximately located. Interval 1,000 feet. Datum is land surface. Based on depths to consolidated rocks measured in pretroleum exploration wells

Western extent of carbonate-rock province (see index map)—Approximately located; based on facies change from continental-shelf carbonate and clastic rocks (eastern Great Basin) to continental-slope siltstone, shale, and platy limestone (central Nevada). Generally follows westernmost extent of carbonate (eastern) assemblage rocks as defined by Stewart and Carlson (1978)

Basin boundary

Geologic maps from Stewart and Carlson (1978) for Nevada basins and Hintze (1980) for Jordan Valley; modified by R.W. Plume, 1985.

Geologic sections from credits listed above and from: (1) gravity surveys of Jordan Valley (Mattick, 1970), Las Vegas Valley (Plume, 1989), Carson Valley (Maurer, 1985), and Dixie Valley (Schaefer, 1983); (2) seismic-reflection survey of Spring Valley (Gans and others, 1985); and (3) unpublished petroleum exploration-well logs in Railroad Valley (R.W. Plume, 1986, this study)

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1996

MAPS AND CROSS SECTIONS SHOWING GENERALIZED GEOLOGY AND GEOMETRY OF SELECTED BASINS IN PARTS OF THE GREAT BASIN, NEVADA AND UTAH

By
Russell W. Plume
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