EXPLANATION FOR GEOLOGIC MAPS 40, 41, 42 AND 43

LAKE AND PLAYA DEPOSITS

[illegible] In addition to those forming [illegible] were laid down in [illegible] playas. Many of these [illegible] are the so-[illegible] Formation. [illegible] mounds on the lee side [illegible] Still others may be distributed by warping. These [illegible] exhibit curious [illegible] to situation, like Bottomless Lakes, which is [illegible] depressions (related to [illegible] ground north of the [illegible] ephemeral ponds in swales [illegible] A fifth type occurs only in the more arid areas at [illegible] and Zuni Salt Lake. Only the first three types appear on the map. Area of deposits represented has been exaggerated because of map scale, but total area probably about right [illegible]

psc — SILTY LAKE OR PLAYA DEPOSITS — Ground mostly bare, gypsiferous deposits labeled psc

ps — SANDY LAKE OR PLAYA DEPOSITS — Gypsiferous deposits labeled psc

[illegible] — DUNE DEPOSITS — Sand or gravel, sandy stretches mostly re-[illegible] low dunes [illegible] completely shown

ev — EVAPORITES — Salts or alkaline deposits precipitated from brines in playas having high evaporation rates, notably Estancia Valley, Animas Valley, and Zuni Salt Lake. Salts are gravitational with playa silt (psc) and occur in orderly concentric zones reflecting relative solubility of the salts. Thickness ranges from 1 to several inches, but salts mixed with mud may be tens of feet deep. Efflorescent crusts subject to wind erosion [illegible] to salinity of ground to lowered

GLACIAL AND PERIGLACIAL DEPOSITS

During the Pleistocene New Mexico had mountain (alpine) glaciers high [illegible] Sangre de Cristo Range, Tusas Mountains, and Sierra Blanca Peak. The course of each of these was in nearly circular, steep sided basins (cirques) at valley heads. Most cirques excavated by the glacial conquest tend to be U shaped; at lower elevations where occupied by streams, these valleys are V shaped. Gravels deposited [illegible] are dependent debris that spilled down the mountainside [illegible] lateral moraines. Narrow, rocky ridges of sand and gravel [illegible] at the quarter from terminal moraines. Within [illegible] at two campsites of the other. As ice retreated, formed [illegible] of the lower edge of the cirque that accumulates unusually in [illegible] rocks broken by frost from the headwall of the cirque, [illegible] the cirque floor and relocated at the ridge. These inner ridges are [illegible] perhaps at the growth is a second ridge, [illegible] and indicate a stand with long and intermittent [illegible] only [illegible] during the most [illegible] "Little Ice Age"

pcq — [illegible] AND GEOMORPHIC FEATURES OF PLEISTOCENE [illegible] — Extent exaggerated

[illegible] — [illegible] DEPOSITS ON MOUNTAIN TOPS — Primarily [illegible] and by boulder fields and patterned ground where frost [illegible] along the glaciations. Extent and boundaries approximate; grading laterally to [illegible] residuum and colluvium

av — AVALANCHE DEPOSITS — Bouldery; some are lag concentrates of boulders where fine grained sediments have been removed by erosion. Deposits narrow and long downslope, commonly 10 to 50 ft thick. Apparently deposited as mudflows during late Pleistocene time when there were numerous perennial mountain snowfields. Frost action at the time was vigorous; sudden thaws could trigger floods or mudflows on the mountainsides. Slow movement downslope may be reactivated by artificial cuts through these deposits if water enters the plane of slippage

ls — LANDSLIDE DEPOSITS — Abundant on slopes of Cretaceous shale. Whereas avalanche deposits are elongate downslope, landslide deposits are short downslope but wide along the contour. Characteristically, they retain a cap of the rock or sandstone sloping into the hillside atop a steep collar of covered shale slope. Stabilized landslides may be reactivated if water is allowed to enter the plane of slippage

MISCELLANEOUS TYPES OF GROUND

[illegible] — BASALT — Includes [illegible] flows, [illegible] cones, cones of scoria, necks, and beds of scoria. Predominantly Quaternary and late Tertiary, some young enough to have sustained minimal weathering and retained their original structures and shapes, are commonly referred to as malpais (Spanish, bad ground). Includes some Tertiary basalt that conspicuously controls the topography. Locally covered by loam (Qlb, eolian deposits, al/b, stream deposits). These older volcanics are more deeply eroded, tilted, and faulted. Individual flows [illegible] than 50 ft thick [illegible] flows may aggregate a few hundred feet thick. Commonly interbedded with volcanic ash (tuff). Excludes areas covered by loess or other sediments, such areas indicated by subscript (e.g., Qlb/[illegible] over basalt, [illegible] sand over basalt). Boundaries shown are adequate

[illegible] — OTHER BEDROCK — Colluvium or other cover amounts to less than [illegible] extensive areas are shown, age and rock [illegible] by symbol to State geologic map (e.g., Kd, Cretaceous Dakota Sand [illegible] Pzs, Permian Santa Rosa Sandstone). Many small areas omitted, indicated [illegible] are approximate. Principal formations and subscripts used are:

- Qv — Galisteo Fm.
- Qtb — Rhyolitic Tuff
- Qtr — Rhyolite Flows
- Qtsf — Upper Santa Fe Group
- Qts — Santa Fe Group, unprovided [illegible] of related formations
- Qtg — [illegible] Conglomerate
- Tc — [illegible] Fm.
- Tsf — [illegible] Santa Fe Group
- Tc — [illegible] Sandstone
- Tc — [illegible] Sandstone
- Tc — [illegible] Conglomerate [illegible] Fm.
- [illegible] — [illegible] Fm.
- Tpt — Potrillo Tuff
- Tp — Potrillo volcanics
- Tv — Tertiary volcanics, largely Datil Fm. in SW, includes [illegible] and post Datil volcanics [illegible]
- Tdb — [illegible] Fm.
- Tg — Galisteo Fm.
- Tsf — Santa Fe Group
- Tm — [illegible] Fm.
- T — Tertiary [illegible] Rocks, undivided
- TKpc — Poison Canyon Fm.
- TKs — Animas Fm.
- TKt — Raton Fm.
- TKoa — Ojo Alamo Sandstone
- Kv — Volcanics of Cretaceous age; various composition
- KKf — Kirtland Shale and Fruitland Fm.
- Kpc — Pictured Cliffs Sandstone
- Kl — Lewis Shale
- Kms — Cretaceous sandstone and shale, mostly Mesaverde Fm.
- Kch — Cliffhouse Sandstone
- Kpl — Point Lookout Sandstone
- Kch — Cretaceous shale
- Kg — Gallup Sandstone
- Km — Mancos Shale
- Kd — Dakota Sandstone
- J — Jurassic, undivided
- Jm — Morrison Fm.
- Jz — Zuni Sandstone
- R, J — Triassic and Jurassic, undifferentiated
- P — Triassic, undifferentiated
- [illegible] — [illegible] Canyon Sandstone
- [illegible] — [illegible] Fm.
- [illegible] — [illegible] Rock Sandstone
- [illegible] — [illegible] Fm.
- [illegible] — [illegible] Group
- [illegible] — [illegible] Fm. (limestone)
- [illegible] — [illegible] Sandstone
- [illegible] — [illegible] Fm.
- Py — Yeso Fm.
- Pa — Abo Fm.
- Ph — Hueco Fm.
- Pal — Paleozoic, undivided
- Pms — Madera Limestone and Sandia Fm., undivided
- P, IP — Permian, Pennsylvanian
- M, D — Mississippian, Devonian
- S, O, Є — Silurian, Ordovician, Cambrian
- pЄ — Precambrian
- gr — Granitic, gneissic, and intrusive rocks of various ages

[illegible] — Disturbed ground. Mostly urban areas large enough to show on state base; farmed lands excluded. Includes airports, mined areas, tailings dumps, and feedlots. Incompletely shown

X — Open pits for road fill, sand, gravel, caliche, or other aggregates

[illegible] — Playa-lake depressions. Mostly small closed basins produced by eolian activity and local solution subsidence

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New Mexico State University, Agricultural Experiment Station, Research reports showing soil association and land classification for irrigation for each county

New Mexico State Highway Department supplied data for aggregate resources in New Mexico

Soil Conservation Service, 1/62,500 aerial mosaics of New Mexico Quadrangles

Data from these and other sources were plotted on the 1:250,000 quadrangle maps, field checked with about 40,000 mi of automobile traverses and 20 hours aerial reconnaissance over areas difficult of ground access. Mapping began spring 1974 and was completed June 1976

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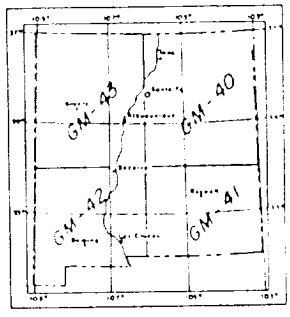

Index map of New Mexico

YUCCA PLANTS

(OF NEW MEXICO