PLATE 2. EXPLANATION

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QUATERNARY

Recent

Qd — Mine or mill dumps

Qal — Younger alluvium or colluvium. (may include small areas of Qt + Qoal)

Qls, Qt — Qls: Landslides ; Qt : rubble + talus

Pleistocene

Qoal — Older alluvium (may include some material of Tmf age)

TERTIARY

Miocene (?) and Pliocene

Tmf — Mimbres formation. Somewhat consolidated gravels and sands

UNCONFORMITY

Tbi — Iddingsite and olivine-bearing basalt dikes and plugs

Tbv, tm, Tss — Basaltic lava flows. tm: rhyolitic or quartz latitic crystal and pumiceous tuff. Tss: well-bedded sandstone locally at base.

Tbg — Boulder + gravel deposits within and at base of basaltic lava flows in the north part of district. Locally consists largely of rhyolite-qtz. latite tuff fragments

UNCONFORMITY

Miocene (?)

Tknu — Upper member of Kneeling Nun quartz latitic crystal tuffs. Locally, a pitchstone flow overlain by sandstone at base.

Tctn — Rhyolitic or quartz latitic crystal tuffs (in the northern part of district)

Tkn — Lower or main member of Kneeling Nun quartz latite crystal tuffs

Tgt, Tbs — Lucky Bill formation. Tgt: gravel, sand, and pumiceous tuffs. Tbs: brown sandstone member

Trp, Trpf — Rubio Peak formation. Trp: gravels and tuffs. Trpf: andesite flows

not exposed in map area but it is thick and prominent in S.E. corner of Santa Rita quadrangle and farther to the S.E. in Sherman Quadrangle.

UNCONFORMITY

TERTIARY

Early Tertiary

Tli, Tliq — Post-Wimsattville dikes and irregular plugs. Tli: sparse quartz group - latite + monzonite porphyry. Tliq: quartzose group - qtz. monz. - qtz. latite porphyry. Tliq group may include equivalents of the Turnerville and Republic dikes.

Tw — 1000 ± ft. Wimsattville formation. Bedded and unbedded arkosic gravel, sandstone and consolidated talus filling crater-like hole near Hanover.

UNCONFORMITY

Tti — Turnerville and Republic dikes. salic - quartz monzonite - qtz. latite porphyry. Pre-Wimsattville fm. Possible equivalents west and north of Hanover may be included in Tliq group.

TKqm or qm — Groundhog quartz monzonite porphyry dikes

TKgd or gd, TKgd₁, TKgd₂ — Granodiorite Intrusives. TKgd or simply gd: granodiorite porphyry dikes; intrude stocks. $TKgd_1$: granitoid hornblende-diorite or qtz. diorite, locally biotite rich; largely in south lobe of Hanover-Fierro stock. $TKgd_2$: porphyritic granodiorite stock rock and apophyses

$TKcf_1$, $TKcf_2$ — Copper Flat intrusives. $TKcf_1$: monzonite porphyry; $TKcf_2$: quartz monzonite porphyries (facies).

Tg_1, Tg_2 — Orthoclase gabbro plugs. Tg_1 Coarser grained, light gray, granitoid facies. Tg_2 Dark gray, less feldspathic + probably older facies.

Tk, Td, Tu — North Star Basin Suite
Tk : Kersantite dikes
Td : diorite dikes; several varieties and ages; some resemble KTlp, KTphd; some have large inclusions of hornblendite.
Tu : undifferentiated dikes; includes augite + pigeonite andesite porphyries, augite-biotite andesite porphyry, augite diorite and hornblende andesite porphyries
Dikes too numerous to map. small proportion shown

TKab — Andesitic breccia and clastic rocks

UNCONFORMITY

Late Cretaceous

KTlp — Quartz diorite sills and dikes (The Later quartz diorite of Bulletin 870)

KThp — Hornblende porphyry dikes and sills

KTphd — Pyroxene - hornblende diorite porphyry. Laccoliths and sills

KTep — Quartz diorite porphyry (Earlier quartz diorite of Bulletin 870

KTaq — Albite - quartz porphyry (known only underground in district)

UNCONFORMITY

Cretaceous

Upper Cretaceous — Colorado formation

Kc — 0-1000 ft. Sandstone member: conglomerate key bed near top shown. thin limestone beds in lower 100 ft.

Kcs — 0-200 ft. Shale member: black, fissile. 20' quartzite 80' above base locally.

Ku — Undifferentiated and brecciated Colarado fm.

Upper (?) Cretaceous

Kb — 0-140 ft. Beartooth quartzite. mostly quartzite, minor shale, sandstone and conglomerate lenses

UNCONFORMITY

Carboniferous

Permian

Ca — 0-500 ft. Abo formation. Red shale, mudstone, and limy mudstones; a few thin conglomerate beds.

UNCONFORMITY

Pennsylvanian — Magdalena Group

Cs — 70-390 ft. Syrena formation. Lower part shale and impure limestone; upper part limestone, some shale

Cu — Undifferentiated Carboniferous

Co — 30-420 ft. Oswaldo formation. Limestone, some thin shales "Parting shale" (0-25') at base. Sandstone lenses locally: Coss.

UNCONFORMITY

Lower Mississippian

Ch, Clv — 100 ± ft, 300 ± ft. Lake Valley formation. Limestone and marly limestone: Clv; Ch: upper part pure crinoidal limestone - "Hanover ls" Ch base, east side Hanover-Fierro stock inferred north of Pewabic area.

Silurian Devonian

Upper Devonian

Dpu, Dp — 15 ft. Percha shale. Dp: black fissile shale: Ready Pay member or undifferentiated Percha. Dpu: shale with limestone ... mapped separately: Box member.

UNCONFORMITY

Silurian; Upper Ordovician

SOfm — 30-40 ft. 370-470 ft. Fusselman limestone (30-40') (Silurian) and Montoya limestone (Ordovician) (370-470 ft.) dolomite and dolomitic limestone; thin sandstone, 1-28 ft. at base locally - the Cable Canyon sandstone member.

Ordovician

Lower Ordovician

Oep — 560 ft. max. El Paso limestone. limestone and dolomitic limestone

Cambrian

Upper Cambrian

Cb — 146 ft. Bliss formation. dolomitic and shaly limestone, shale, some conglomerate and one or two quartzite members, glauconititic in part.

UNCONFORMITY

Precambrian

pC — Silicious spotted hornfels + mica schist; greenstone east of the district.

Symbols

Contact. Dashed where approximately located

Inferred contact and boundary of surficial deposits

Concealed contact

Fault showing downthrown side (D) and direction and amount of dip if known. dashed where approximately located; dotted where concealed

Doubtful or probable fault

Thrust or reverse fault (T, upper plate or side)

Weak fracture

Strike and dip of beds. amount of dip shown where determinable

Strike and dip of overturned beds

Horizontal beds

Strike and dip of joints

Strike of vertical joint

Strike and dip of foliation and rake of lineation

Landslide, approximate limits. Geology of slightly disrupted slides shown if not concealed

Wavy line represents very narrow dikes

approximate boundary of brecciated ground, but not all brecciated areas can be shown

Shaft and pit

adit; caved adit

Narrow veins in North Star basin

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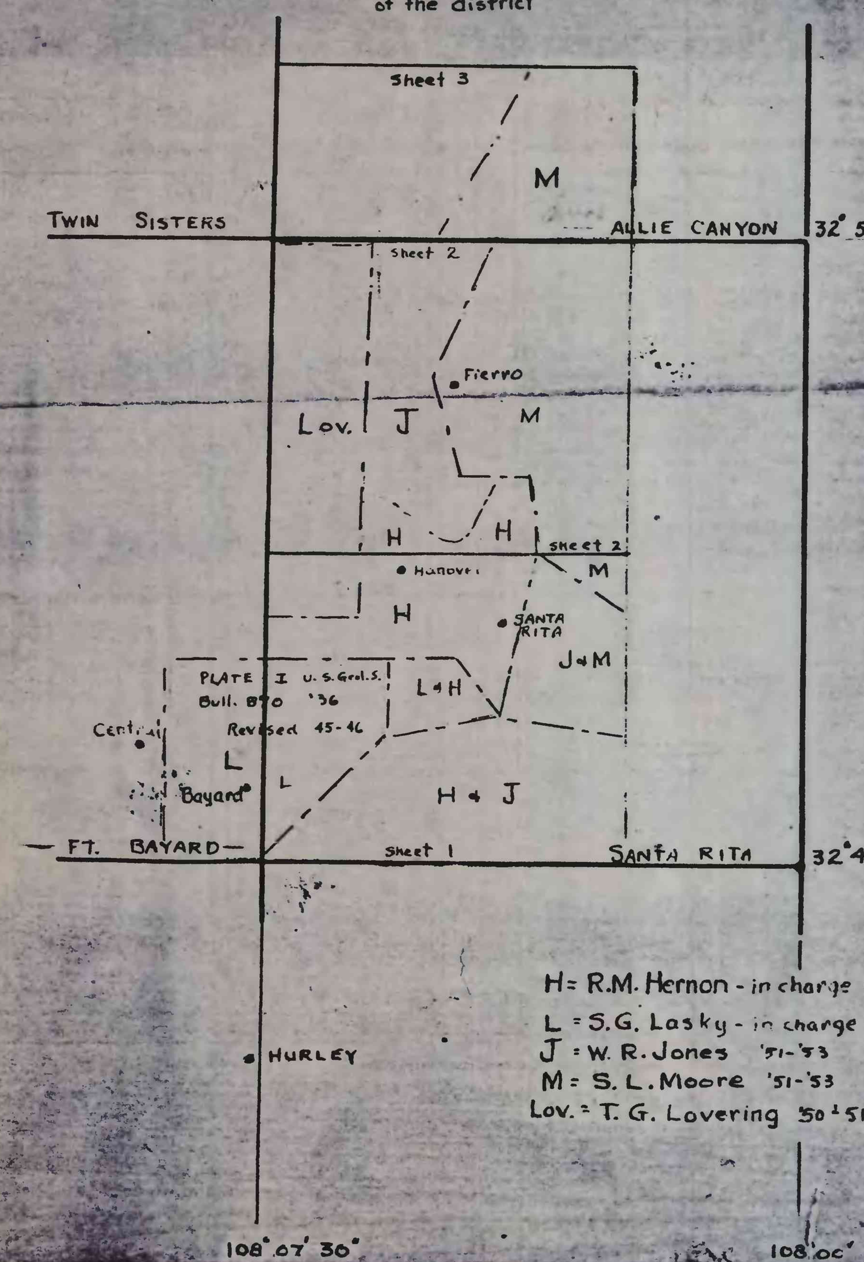
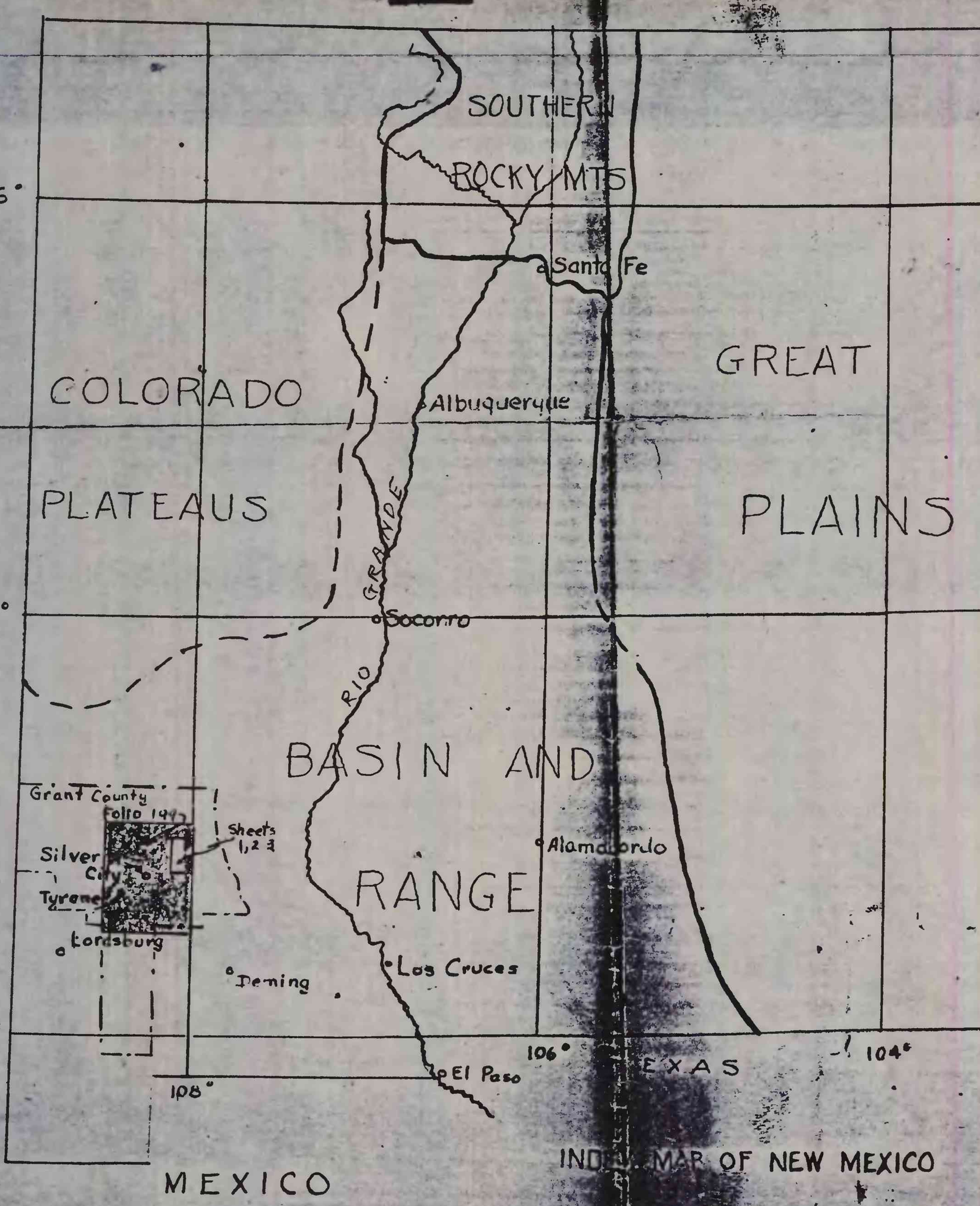
INDEX MAP

showing location of sheets 1, 2, + 3 with respect to quadrangle boundaries; subdivided to show main contributor in each sector of the district





INDEX MAP OF NEW MEXICO

TABLE 3

Generalized Interrelation of Alteration - Metalization, Intrusion, and Deformation

ALTERATION - METALIZATION

Recent ↑ Upper Cretaceous

Biotitization

Bleaching or Argillic alteration: chlorite, clay, sericite types, silica and pyrite

Tactite: garnet, epidote, ilvaite, solite and magnetite

Sphalerite + minor galena, pyrite

Chalcopyrite and minor amounts of molybdenite, + pyrite in quantity.

SEQUENCE OF INTRUSION	DEFORMATION
	Minor faulting that affects cemented older alluvium
Basalt flows and plugs	Major N.W. faults rejuvenated. Cut Mimbres fm. during and after Mimbres (or Gila) time.
Miocene (?) volcanics: andesite, basalt, rhyolite flows and tuffs:	Punctuated by minor faulting + jointing
Sparse quartz group of dikes	Repeated fracturing in N.N.E. belt across district
Quartzose dikes and plugs	Repeated fracturing in Hanover Sector. Development of Wimsattville crater-like hole
Turnerville and Republic dikes	Renewed fracturing trending N.W. + E. Large area brecciated north of Hermosa mtn.
Groundhog quartz monzonite porphyry dikes	Widespread reopening along granodiorite dikes; new breaks more or less paralleling older.
Granodiorite dikes	Reopening of old breaks and new ones, development of large brecciated areas N.W. of Santa Rita
Granodiorite-qtz. monzonite stocks and apophyses:	Concomitant thrusting and folding of confining sediments.
	Fault and fracture pattern of district developed
Orthoclase gabbro, assorted basic dikes	Thousands of fractures developed north of Barringer fault and throughout many miles west of district.
Andesite breccia and flows	Faulting and erosion. Barringer fault initial development
Quartz diorite and pyroxene hornblende diorite porphyries as sills, laccoliths, and few dikes:	concomitant faulting. Sparse vertical fractures formed.
Quartz diorite porphyry as thick sills.	Weak local development of northeast and northwest fracture - fault system: but few through going breaks

From Cambrian to Upper Cretaceous (about 400 million years) no evidence of deformation, intrusion, or alteration and metalization.

56-65 PLATE 2