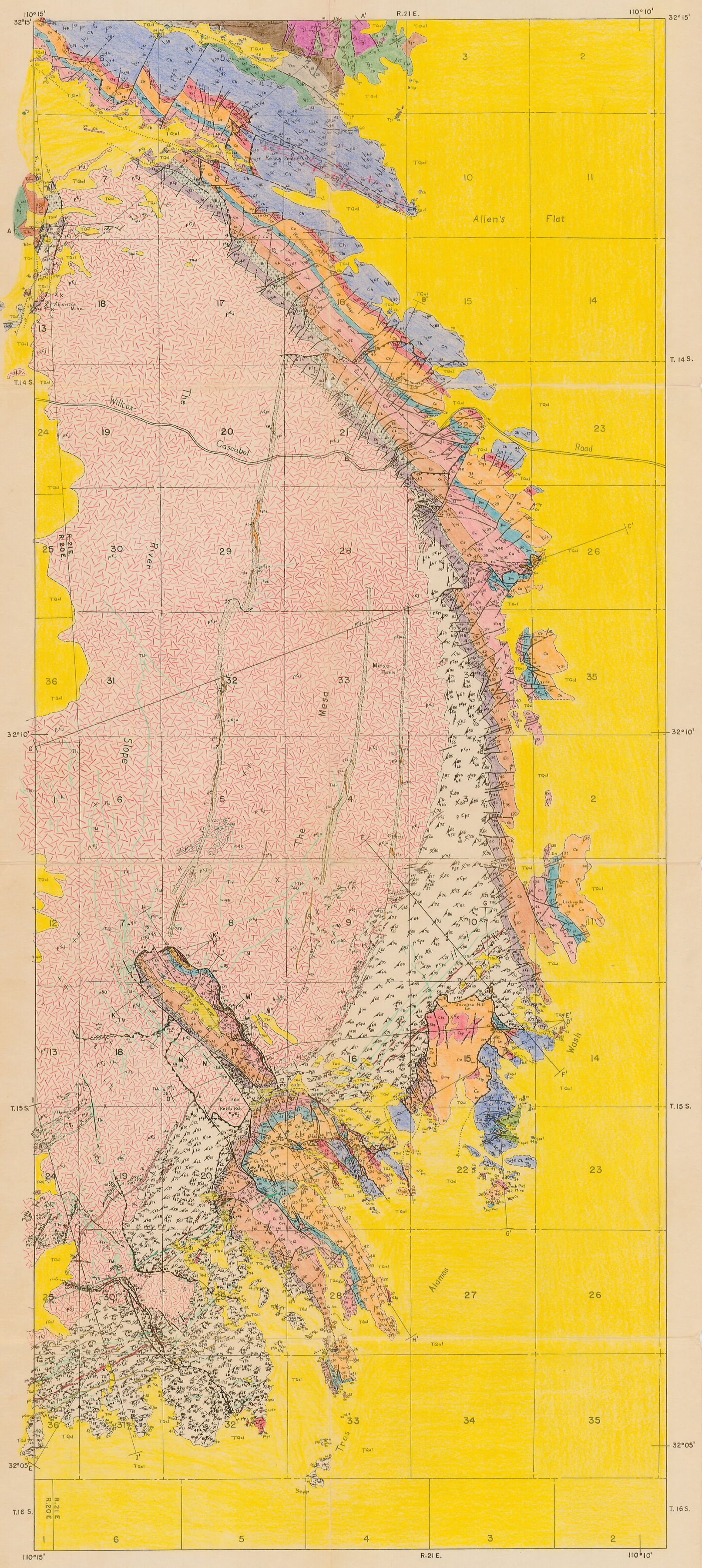
PLATE I

Silver_lt_1955



EXPLANATION

QUATERNARY — Pleistocene and Recent

TQal / Qt — **Alluvium**
(Fluviatile conglomerate, sand and silt with some lake beds. Qt, recent talus, which may conceal significant relations)

Unconformity

TERTIARY — Pliocene; Eocene(?) to Pliocene(?)

Tgr, Tgc, Tgl, Tga — **Galiuro volcanics**
(Tgr, rhyolite tuff member; Tgc, conglomerate member; Tgl, quartz latite member; Tga, andesite member)

Tr — **Rhyolite dikes**

Ttc — **Threelinks conglomerate**
(Poorly sorted conglomerate and sand with both sedimentary and volcanic rock fragments up to cobbles and boulders in size)

Unconformity

CRETACEOUS OR TERTIARY

Tld, Tlb, Tlu — **Lamprophyre dikes and sills**
(Tld, Tlb, individually mapped types; Tlu, undifferentiated and may include older dikes)

Unconformity *(overthrusts)*

CRETACEOUS — Lower Cretaceous, Bisbee Group

Kmc — **Morita-Cintura formations undifferentiated**
(Interbedded shale, sandstone and impure limestone)

Kg — **Glance conglomerate**
(Coarse, well-cemented, limestone conglomerate)

Unconformity

TRIASSIC OR JURASSIC

RJw — **Walnut Gap volcanics**
(Andesitic and rhyolitic flows and pyroclastics)

Unconformity

CARBONIFEROUS — Middle and Upper Pennsylvanian, Naco Group; Upper Mississippian or Lower Pennsylvanian; Lower Mississippian

Cpel — **Earp formation, lower member**
(Shale, calcareous sandstone and interbedded thin limestones)

Ch — **Horquilla limestone**
(Limestone and shale interbedded)

Cbp — **Black Prince limestone**
(Limestone with thin basal shale member)

Ce — **Escabrosa limestone**
(Cliff making, massive limestone and dolomite)

DEVONIAN — Upper Devonian

Dm — **Martin formation**
(Dolomite with some shale and sandstone)

CAMBRIAN — Upper Cambrian, Middle Cambrian

Ꞓa, Ꞓaq — **Abrigo formation**
(Shale, impure limestone and sandy dolomite; Ꞓaq, quartzite marker bed)

Ꞓb — **Bolsa quartzite**
(Red-brown to white massive quartzite)

Unconformity

PRE-CAMBRIAN — Upper Pre-Cambrian, Apache Group; Lower Pre-Cambrian

db — **Diabase sill**

p€p — **Pioneer shale**
(Purple and tan argillite on grey arkosic quartzite containing the Scanlan conglomerate at base)

Unconformity

p€j — **Johnny Lyon granodiorite**
(Includes associated aplites and pegmatites; p€ja, altered phase; p€jh, hybrid phase)

p€mr — **Mica rhyolite sheets**
(White intrusive rhyolite with conspicuous muscovite plates)

Regional deformation and metamorphism

p€r — **Rhyolite sheets and other intrusives**
(Brown rhyolite with coarse rounded quartz phenocrysts)

p€ps — **Pinal schist**
(Interbedded sericite schist, phyllite and metamorphosed greywacke-type sandstone)

Quartz lens and vein

Carbonate-limonite vein

Contact showing dip *(dashed where approximately located; dotted where concealed)*

Fault, showing dip *(dashed where approximately located; dotted where concealed; question mark where doubtful or probable)*

Thrust fault *(saw teeth on side of upper plate)*

Shear zone showing dip

Fault breccia

Anticline *(dashed where approximately located)*

Syncline *(dashed where approximately located)*

Plunge of fold axes *(minor isoclinal folds)*

Strike and dip of beds

Strike and dip of overturned beds

Strike of vertical beds

Strike and dip of beds *(where top side is not known)*

Strike and dip of foliation *(schistosity in the Pinal schist; shear structures in the Johnny Lyon granodiorite)*

Strike and dip of foliation with plunge of lineations

Strike of vertical foliation and plunge of lineation

Plunge of lineation *(with special case of horizontal lineation)*

Prospectpit or open cut

Portal of tunnel or adit

Base enlarged from part of the U.S. Geological Survey topographic map of the Dragoon quadrangle, Cochise Co., Arizona, ed. 1943

TRUE NORTH / MAGNETIC NORTH 14°

MEAN DECLINATION

Geology by L.T. Silver, A.E. Disbrow, J.R. Cooper, J.A. MacKallor
Surveyed in 1949—1952

GEOLOGIC MAP OF THE JOHNNY LYON HILLS AREA COCHISE CO., ARIZONA

Scale $\frac{1}{24000}$

1 0 1 2 3 Miles

5000 0 5000 10000 15000 Feet

1953