FIELD STUDIES MAP 6 GEOLOGIC MAP OF THE MINA QUADRANGLE, NEVADA **NEVADA BUREAU OF MINES AND GEOLOGY** Qac Alluvium and colluvium (Quaternary) Unconsolidated sand and gravel deposits, fans, talus, slopewash de-Qac posits (including alkali flat (playa) deposits), and aeolian sand Qt Qls unconformity Qt Talus deposits (Quaternary) Unconsolidated sand to gravelly talus deposits. QTac Cls Landslide deposits (Quaternary) Unconsolidated land-slide deposits generally composed of underlying or adja-Ts Older alluvium and colluvium (Quaternary and Tertiary) Consolidated and unconsolidated sand and unconformity gravel deposits, fans, talus, slopewash deposits (including alkali Ttu flat (playa) deposits), and aeolian sand deposits. Tb Basalt and basaltic andesite (Pliocene and/or Miocene) Dark-gray to black aphanitic flows; phenocryst-Ta Tai poor lavas contain small (1 mm or less) plagioclase phenocrysts. unconformity Ts Sedimentary rocks (Pliocene and/or Miocene) Fine-grained volcanogenic lacustrine sediments and partially Tts consolidated fluvial gravels and sandstones. unconformity Tr Rhyodacite (Pliocene and/or Miocene) Intrusive rhyodacite, locally massive and locally containing welldeveloped cooling joints. Ttu Undifferentiated tuff (Miocene) Crystal-rich ash-flow tuff. Ta Andesite (Miocene) Extrusive andesite flows, breccia, lahars, and local hypabyssal intrusive bodies. Locally Jdl Jdv interbedded with thin volcanogenic sedimentary units. Intrusive andesite (Miocene) Andesite dikes, probably late-stage feeder systems to upper part of andesite unit Tts Singatse Tuff (Oligocene) Brown to red-brown, moderately to densely welded ash-flow tuff; crystal rich and J∓vp contains abundant lithic fragments. Crystals are plagioclase, quartz, sanidine, biotite, and hornblende. Dated locally with K-Ar (biotite) as 27.2 ± 1.1 Ma (Proflett, 1977). TKf Felsite (Tertiary and/or Cretaceous) White to light-buff aphanitic and porphyritic intrusive rocks containing TKp Feldspar porphyry (Tertiary and/or Cretaceous) Mafic feldspar porphyry intrusive. Euhedral phenocrysts of feldspar ranging in size from 1 to 15 mm are contained in a darkgreen aphanitic groundmass. Unit locally composed of autobreccia. MAP SYMBOLS Jd Duniap Formation (Jurassic) Terrigenous clastic rocks and locally, minor interbedded carbonate rocks. Terrigenous clastic rocks are characterized by coarse chert breccia, carbonate breccia, volcanic breccia, and abundant quartz Contact Dashed where approximately located. and/or feldspar sandstone in a argillite matrix. The formation resides in numerous thrust nappes and may represent diverse High-angle fault Dashed where approximately located, Dunlap Carbonate Member Light-gray to buff weathering resedimented limestone, consisting of dotted where concealed; ball on downthrown side where relative displacement known; arrows indicate relative lateral carbonate breccia, calcarenite, and micrite. Carbonate interdisplacement when known; A and T indicate away and toward bedded with red- to green-weathering argillite and sandy relationships of strike slip faults on cross sections. argillite. Unit gradationally overlies Jdv member. Jdv Dunlap Volcanic/Volcanogenic Member Interbedded red to purple argillite, feldspathic sandstone, <del>^</del>commonly containing volcanic fragments, volcanic-lithic Thrust fault Teeth on upper plate; dashed where approxconglomerate with feldspathic sandstone and/or argillite matrix, imately located, dotted where concealed, overturned where and feldspar porphyry volcanic rocks. Volcanic rocks consist of flows and breccia units. Unit gradationally overlies Jds member. Jds Dunlap Sandstone Member Quartz and/or quartz and feldspar arenite of lower Dunlap Formation; un-Low-angle fault of uncertain origin. differentiated Jds<sub>1</sub> and Jds<sub>2</sub>. Jdc Dunlap Conglomerate Member Limestone and/or limestone and chert pebble conglomerate of lower Dip of fault Dunlap Formation; undifferentiated Jdc<sub>1</sub> and Jdc<sub>2</sub>. Stratigraphic facing direction Jds<sub>2</sub> Dunlap Sandstone Upper Member Interbedded quartz and feldspar sandstone, argillite, and conglomerate containing chert and volcanic clasts. Unit grad-(cross section) Strike and dip of bedding ationally overlies Jdc, member. Jdc<sub>2</sub> Dunlap Conglomerate Upper Member Interbedded well-sorted, fine-grained quartz arenite and **Bedding with primary tops** boulder to pebble conglomerate. Conglomerate composed of angular to subangular chert and limestone clasts in a quartz Overturned bedding arenite matrix. Never seen in contact with stratigraphically lower(?) Jds<sub>1</sub> member. Overturned bedding with primary tops Jds<sub>1</sub> Dunlap Sandstone Lower Member Massive to thin-bedded quartz arenite. Locally contains thin Vertical bedding interbeds of limestone pebble conglomerate. Gradationally overlies Jdc<sub>1</sub> member. Jdc<sub>1</sub> Dunlap Conglomerate Lower Member Interbedded well-sorted, fine-grained quartz arenite, fined 32 grained limestone, and boulder to pebble conglomerate. ----- Axial-trace D<sub>1</sub> fold Conglomerate composed of angular to subangular limestone clasts in a limestone matrix. Volcano Peak Formation (Jurassic and Triassic)
Interbedded limestone and calcareous mudstone. P ----- Axial-trace D<sub>3</sub> fold Several mappable units composed of dark-gray thin-bedded micrite and light-brown fossiliferous limestone, interbedded with calcareous mudstone and argillite containing sparse interbeds of sandstone and limestone are recognized (modified after Taylor and others, 1983). Members are not shown on map due to scale. The Volcano Peak disconformably overlies the Luning Formation. Luning Formation (Upper Triassic) Consists of interbedded members of carbonate and terrigenous clastic rocks. Carbonates are generally thin- to medium-bedded gray to black limestone and locally dolomite. Terrigenous clastic rocks are interbedded chert-quartz sandstone, chert-pebble conglomerate, and argillite. Several members are recognized (Oldow, 1981). Tilu Upper Member Medium-bedded carbonate (80%), consisting of limestone passing upward into dolomite, with about 20% interbedded argillite. Dolomitic carbonate breccia of the upper memlapse origin. Rim Middle Member Chert-pebble and boulder conglomerate, chert-quartz arenite and wacke, and Scale 1:24,000 Lower Member Thin- to thick-bedded limestone, commonly very fossiliferous, with up to 80% inter-**CONTOUR INTERVAL 40 FEET** Pbd Black Dyke Formation (Permian) Consisting dominantly of mafic volcanic rocks and their epiclastic Base map: U.S. Geological Survey Mina 7.5' Quadrangle, 1967 derivatives; K-Ar (hornblende) ages of 253 ± 3 Ma (Speed, 1977). Office review by: R. F. Hardyman, USGS L. J. Garside, NBMG D. A. Davis, NBMG REFERENCES Oldow, J. S., 1981, Structure and stratigraphy of the Luning allochthon and the kinematics of allochthon emplacement, Pilot Mountains, west-central Nevada: Geological Society of America Bulletin, v. 92, part I, p. 888-911, part II, p. 1647-1669.

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J. G. Price, NBMG L. J. Garside, NBMG D. A. Davis, NBMG First edition, first printing, 1993, 500 copies Printed by A. Carlisle, Reno, NV and implications for the nature and origin of Basin and Hange faulting: Geological Society of America Bulletin, v. 88, p. 247-266.

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Qac + QTac +Tr

GEOLOGIC MAP
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John S. Oldow and Holly A. Dockery

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