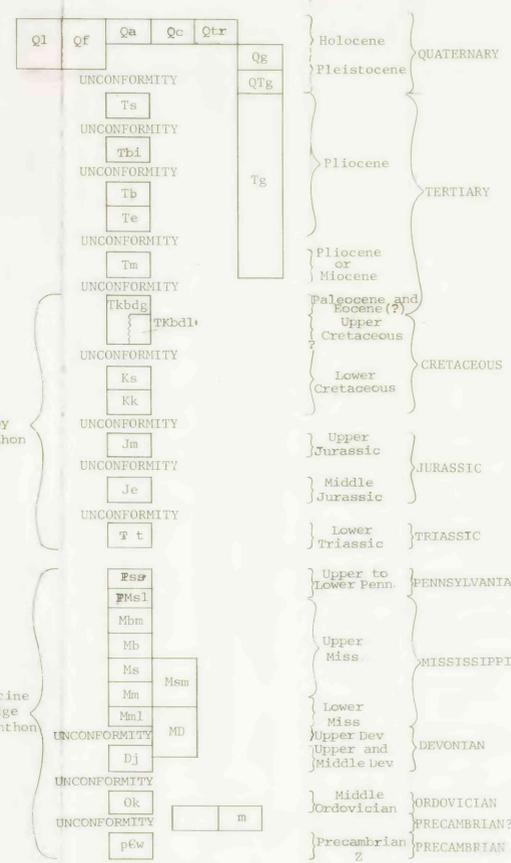


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qa ALLUVIUM (HOLOCENE)--Unconsolidated deposits of fluvial silt, sand, and gravel
Qc COLLUVIUM (HOLOCENE)--Unconsolidated and partly consolidated rubble chiefly at base of steep slopes
Qtr TRAVERTINE (HOLOCENE)--Mounds and terraces of travertine localized along faults in sec. 13, T. 11 N., R. 32 E.
Q1 LANDSLIDE DEPOSITS (QUATERNARY)--Unconsolidated and partly consolidated deposits of coarse, mostly angular unsorted detritus
Qf ALLUVIAL FAN DEPOSITS (QUATERNARY)--Fan-shaped deposits of unconsolidated silt, sand, and gravel
Qg AUTOCHTHONOUS VOLCANIC AND SEDIMENTARY ROCKS GRAVEL AND SAND (QUATERNARY)--Thin unconsolidated gravel and sand colluvium derived from underlying Beaverhead Formation in vicinity of Deer Canyon and East Fork of Irving Creek; thin lag gravel in south part of area
QTg GRAVEL (QUATERNARY, some possibly late Pliocene)--Unconsolidated to poorly consolidated deposits of gravel, sand, and silt that form widespread terraces
Tg GRAVEL (PLIOCENE AND UPPER MIOCENE(?))--Poorly consolidated to well-consolidated deposits of tuffaceous gravel, sand, and silt
Ts TUFF OF SPENCER (PLIOCENE)--Light-gray, purple, pink, and brown, densely welded to partially welded rhyolite ash-flow tuff; commonly lithophysal, contains sparse to moderately abundant phenocrysts of plagioclase in a devitrified to glassy eutaxitic groundmass. Flattened pumice fragments are generally small (<3 cm long) but locally quite abundant. Thickness 0-60 m (0-200 ft)
Tb1 BASALT OF INDIAN CREEK (PLIOCENE)--Basalt, dark- to medium-gray, blocky, contains sparse phenocrysts of olivine and (or) plagioclase in a dense to diktytaxitic groundmass. Several flows. Thickness 0-80 m (0-260 ft)

- Tb TUFF OF BLUE CREEK (PLIOCENE)--Rhyolite ash-flow tuff, light-gray, purple, pink, and brown, densely welded with a thick prominent basal vitrophyre that has been a local source of obsidian for artifacts. Contains rare phenocrysts of plagioclase. Thick sections are highly lithophysal. Thickness 0-180 m (0-590 ft)
Te EDIE SCHOOL RHYOLITE (PLIOCENE)--Rhyolite ash-flow tuff, light-gray, purple, pink and brown, densely welded, contains a moderate amount of phenocrysts of plagioclase, sanidine, quartz, and hornblende. The amount of hornblende increases markedly upward in the sheet. Thickness 0-100 m (0-330 ft)
TKbd1 BEAVERHEAD FORMATION (Divide Limestone conglomerate unit) (LOWER(?) CRETACEOUS TO PALEOCENE)--Interbedded conglomerate and sandstone: Conglomerate clasts of limestone and sandstone, mostly subrounded, and up to 1 m (3 ft) in diameter; limestone clasts, olive-gray, brownish-gray, dark-yellowish-orange, and medium-gray; sandstone clasts, medium-gray to yellowish-brown, fine- to medium-grained, mostly calcareous, some platy, some sandstone coquina; both limestone and sandstone clasts resemble Mesozoic and upper Paleozoic rocks of southwestern Montana. Sandstone, very pale orange, pinkish-gray, grayish-orange-pink, fine-grained to conglomeratic, calcareous, thin- to thick-bedded, (beds up to 6 m (20 ft) thick); local large-scale foreset bedding, some Liesegang banding; weathers light brownish gray, grayish orange and grayish orange pink. Divide Limestone conglomerate unit forms Knot Mountain and Red Conglomerate Peaks; about 4,700 feet (1,432 m) thick measured in secs. 26, 35, T. 15 N., R. 8 W., Beaverhead County, Montana, and secs. 2, 11, T. 13 N., R. 33 E., Clark County, Idaho (Ryder and Scholten, 1973). Contact with underlying Mesozoic rocks, ranging in age from Early Triassic (Thaynes Formation) to Early Cretaceous (sandstone and claystone unit), unconformable (probably a thrust fault)
Tc ELIAS GROUP, PART (MIDDLE JURASSIC)--(In descending order) Elerdon Formation: Limestone, pale-yellowish-brown; oolitic, weathers pale yellowish brown; thin-bedded, forms low ledge, about 30 m (100 ft) thick. Sawtooth Formation: Upper limestone, pale-yellowish-brown, aphanitic, weathers grayish orange in part; thin-bedded, locally fossiliferous (pelecypods and gastropods); the pelecypod Pronocella cf. P. Uintahensis Inlay was identified by R. W. Inlay (written commun., 1976) as of Middle Jurassic age. Basal limestone, very pale orange, argillaceous, thin-bedded, forms slope about 51 m (200 ft) thick. Complete Elias Group about 91 m (300 ft) thick; unconformably overlies Thaynes Formation
Tc1 THAYNES FORMATION (LOWER TRIASSIC)--Interbedded limestone and sandstone: Limestone, light-olive-gray to medium-gray, some mottled very pale orange and medium-light-gray, fine-grained, sandy, thin-bedded; contains scattered medium-gray chert nodules, pelecypods, echinoid spines and conodonts (Eliasonia sp. identified by R. S. Wardlaw (written commun., 1978)). Thin interbeds of sandstone, grayish-orange, very fine grained, calcareous. Forms ridge; about 244 m (800 ft) thick; base not exposed in quadrangle
TKbd2 SANDSTONE AND CLAYSTONE UNIT (LOWER CRETACEOUS)--Interbedded sandstone, claystone, and tuff. Sandstone, light-olive-gray, greenish-gray, yellowish-brown, salt-and-pepper in part, very fine grained to medium-grained, impure, tuffaceous, argillaceous, calcareous in part, friable in part, medium-bedded, weathers dark greenish gray and yellowish brown. Claystone, pale-olive and light-olive-gray, silty, bentonitic. Tuff, light-gray, fine- to medium-grained, contains plagioclase, biotite, and quartz; massive; weathers medium brownish gray. Sandstone and claystone unit forms slopes with numerous landfills; probable thrust contact with Beaverhead Formation within quadrangle. Contact with underlying Footwall Formation covered by landfills; gradational contact with Footwall reported in area northeast of quadrangle (Scholten, Keenmon, and Kupsch, 1955). Sandstone and claystone unit is Aspen Formation of Scholten, Keenmon and Kupsch (1955). Early Cretaceous age determined by pollen (Ryder and Scholten, 1973). Regional thickness 0-1,066 m (0-3,500 ft) (Scholten, Keenmon and Kupsch, 1955); thickness within quadrangle 0-3054 m (0-1,0044 ft)
Tc2 MORRISON FORMATION (UPPER JURASSIC)--Mudstone and sandstone: Mudstone, moderate-reddish-orange, sandy, calcareous; forms slope at top of formation; about 45 m (150 ft) thick. Sandstone, salt-and-pepper, medium-light-gray, coarse-grained, calcareous, fine- to medium-bedded, cross bedded; weathers moderate brown; forms low rounded ledges and a ridge at base of formation; about 15 m (50 ft) thick. Entire interval about 61 m (200 ft) thick. Unconformably overlies Elias Group
Tc3 BIG SNOWY FORMATION (UPPER MISSISSIPPIAN)--Shale and minor interbedded limestone, siltstone, sandstone, and carbonate conglomerate: Shale, medium-dark-gray to dark-gray, minor grayish-green; calcareous in places with large 0.6 m (2 ft) limonitic calcareous concretions near base. Limestone, medium-dark-gray, aphanitic to coarse-grained, argillaceous and sandy, thin- to medium-bedded; fossiliferous in places (brachiopods, molluscs, bryozoa, encrinurid debris, conodonts, and foraminifers); brachiopods identified by J. T. Dutro, Jr. (written commun., 1975) include Anthracospirifer sp., Composita sp., Diaphragmus? sp., Inflatia? sp., and Ovatia? sp.; conodonts identified by John Repetski (written commun., 1976) include Aedetognathus unicornis (Bexrod and Burton), Cavusgnathus unicornis Youngquist and Miller, Cavusgnathus cf. C. regularis, and Uzarlodina compressa Bexrod SENSU POMO, and indicates a late Chesterian age. Carbonate conglomerate, medium-gray, with clasts as much as 12.5 cm (5 in) in diameter, and abundant phosphorite pellets. Sandstone, olive-gray, very fine grained, quartzose, calcareous. Siltstone, dark-gray, calcareous, argillaceous, carbonaceous near top of formation; Orthicoeloides common in all facies; weathers to saddle. Sharp contact with underlying Scott Peak and gradational contact with overlying formation of Bluebird Mountain; thickness about 122 to 152 m (400 to 500 ft)
TKbd3 SCOTT PEAK FORMATION (UPPER MISSISSIPPIAN)--Limestone, medium-dark-gray to dark-gray, fine- to coarse-grained wackestone and packstones, sandy and silty in lower part in places; mostly thick-bedded, locally thin- to medium-bedded; black chert and brown-weathering incipient chert nodules common in some beds; limestone weathers medium to light gray, some pale yellowish brown. Fossiliferous; fauna includes large rugose and colonial corals, productid and spiriferid brachiopods, bryozoa, molluscs, cephalopods, and foraminifers. Disharmonic folds common. Forms cliffs and steep talus covered slopes. Thickness about 550 m (1,800 ft)
TKbd4 MIDDLE CANYON FORMATION (UPPER TO LOWER MISSISSIPPIAN)--Limestone, medium- to dark-gray, silty and sandy, fine-grained wackestone to coarse-grained enclinite with variable amounts of chert. Black chert, in lenses and beds forms as much as 50 percent of lower part of unit in places. Form debris-covered smooth slopes in most places, and ledges where chert is prominent. Contact with overlying Scott Peak gradational. Estimated thickness 122 to 183 m (400 ft to 600 ft)
TKbd5 SCOTT PEAK AND MIDDLE CANYON FORMATIONS UNDIVIDED (UPPER TO LOWER MISSISSIPPIAN)--Formations mapped together near Fritz Peak
TKbd6 MCGOWAN CREEK FORMATION (LOWER MISSISSIPPIAN)--Thick lenses of basal limestone mapped separately in secs. 29 and 30 (unsurveyed), T. 12 N., R. 32 E. Medium-dark-gray to dark-gray, aphanitic, silty, argillaceous; weathers light olive gray to pale yellowish brown, medium light gray, some grayish red. Even-bedded; beds .15-.5 m (0.5-1.5 ft). Previously unreported rare fauna includes goniatites Paricoculus (Botopericoculus) Turner (identified by Mackenzie Gordon Jr., written commun., 1976), tetracorals, Rhopalolasma sp. (identified by W. J. Sando, written commun., 1976), brachiopods, shark teeth, conodonts, and meandering trails which resemble Nereites sp. The conodonts, Siphonodella ligosticha Cooper sensu Klapper (1971) and Elictognathus laceratus (Branson and Weh), 1938 indicate a Kinderhookian age, probably late Kinderhookian (John

- and cf. Planorbidae identified by J. H. Hanley (written commun., 1977); about 15 m (50 ft) thick. Red mudstone interval about 61 m (200 ft) thick below limestone ledge. Basal sandstone and conglomerate: Sandstone, light-olive-gray, fine-grained to conglomeratic, mostly noncalcareous. Conglomerate contains fragments up to 1.5 cm in diameter, medium- to well-rounded, medium-gray chert in a noncalcareous, very fine-grained to fine-grained quartzose sandstone matrix; about 30 m (100 ft) thick; forms ledge at base of unit. Entire interval at least 610 m (2,000 ft) thick. Overlain by the Beaverhead Formation in probable thrust contact; conformable contact with overlying sandstone and claystone unit present north of quadrangle (Scholten, Keenmon and Kupsch, 1955). Unconformably overlies the Morrison Formation
TKbd7 BEAVERHEAD FORMATION (UPPER MISSISSIPPIAN)--Mudstone and sandstone: Mudstone, moderate-reddish-orange, sandy, calcareous; forms slope at top of formation; about 45 m (150 ft) thick. Sandstone, salt-and-pepper, medium-light-gray, coarse-grained, calcareous, fine- to medium-bedded, cross bedded; weathers moderate brown; forms low rounded ledges and a ridge at base of formation; about 15 m (50 ft) thick. Entire interval about 61 m (200 ft) thick. Unconformably overlies Elias Group
TKbd8 ELIAS GROUP, PART (MIDDLE JURASSIC)--(In descending order) Elerdon Formation: Limestone, pale-yellowish-brown; oolitic, weathers pale yellowish brown; thin-bedded, forms low ledge, about 30 m (100 ft) thick. Sawtooth Formation: Upper limestone, pale-yellowish-brown, aphanitic, weathers grayish orange in part; thin-bedded, locally fossiliferous (pelecypods and gastropods); the pelecypod Pronocella cf. P. Uintahensis Inlay was identified by R. W. Inlay (written commun., 1976) as of Middle Jurassic age. Basal limestone, very pale orange, argillaceous, thin-bedded, forms slope about 51 m (200 ft) thick. Complete Elias Group about 91 m (300 ft) thick; unconformably overlies Thaynes Formation
TKbd9 THAYNES FORMATION (LOWER TRIASSIC)--Interbedded limestone and sandstone: Limestone, light-olive-gray to medium-gray, some mottled very pale orange and medium-light-gray, fine-grained, sandy, thin-bedded; contains scattered medium-gray chert nodules, pelecypods, echinoid spines and conodonts (Eliasonia sp. identified by R. S. Wardlaw (written commun., 1978)). Thin interbeds of sandstone, grayish-orange, very fine grained, calcareous. Forms ridge; about 244 m (800 ft) thick; base not exposed in quadrangle
TKbd10 SEDIMENTARY ROCKS OF THE MEDICINE LODGE ALLOCHTHON (Skipp and Hait, 1977)
FORMATION OF SNAKY CANYON--LOWER PART (UPPER PENNSYLVANIAN TO UPPERMOST MISSISSIPPIAN): Sandstone unit--Sandstone, medium-gray and light-brownish-gray, very fine grained, thin-bedded, calcareous, weathers moderate yellowish brown. Forms low knob. Incomplete sequence, and present only in one locality southeast of Fritz Peak; thickness about 90 m (200 ft); top not exposed in quadrangle
TKbd11 Limestone unit--Limestone, medium- to light-gray, mostly fine- to medium-grained wackestone and packstone, sandy and silty; weathers medium to light gray and yellowish brown; concentrically banded stromatolite mounds common; chert in nodules and layers common; fossiliferous--crinoids, bryozoa, corals, brachiopods, molluscs, calcareous algae and foraminifers; a few thin, very fine grained, brown-weathering calcareous sandstone beds in lower part; medium- to thin-bedded; forms gentle slopes with scattered ledges; gradational contact with overlying sandstone unit. Thickness about 650 m (2,130 ft), measured in sec. 30 (unsurveyed) T. 10 N., R. 31 E. in Copper Mountain quadrangle to southwest
TKbd12 FORMATION OF BLUEBIRD MOUNTAIN (UPPER MISSISSIPPIAN)--Quartzose sandstone, with minor limestone and dolomite: Sandstone, light-gray, very fine grained to fine-grained, commonly quartzitic, some

- calcareous, mostly thin-bedded; weathers light brown. Minor limestone and dolomite in beds 1.7 m (5 ft) thick; siliceous nodules up to 12.5 cm (5 in) in diameter common in several beds; largely unfossiliferous. Forms cliffs or ledges above Big Snowy Formation; gradational contact with overlying formation of Snaky Canyon. Thickness ranges from 90 to 120 m (300 to 400 ft)
TKbd13 BIG SNOWY FORMATION (UPPER MISSISSIPPIAN)--Shale and minor interbedded limestone, siltstone, sandstone, and carbonate conglomerate: Shale, medium-dark-gray to dark-gray, minor grayish-green; calcareous in places with large 0.6 m (2 ft) limonitic calcareous concretions near base. Limestone, medium-dark-gray, aphanitic to coarse-grained, argillaceous and sandy, thin- to medium-bedded; fossiliferous in places (brachiopods, molluscs, bryozoa, encrinurid debris, conodonts, and foraminifers); brachiopods identified by J. T. Dutro, Jr. (written commun., 1975) include Anthracospirifer sp., Composita sp., Diaphragmus? sp., Inflatia? sp., and Ovatia? sp.; conodonts identified by John Repetski (written commun., 1976) include Aedetognathus unicornis (Bexrod and Burton), Cavusgnathus unicornis Youngquist and Miller, Cavusgnathus cf. C. regularis, and Uzarlodina compressa Bexrod SENSU POMO, and indicates a late Chesterian age. Carbonate conglomerate, medium-gray, with clasts as much as 12.5 cm (5 in) in diameter, and abundant phosphorite pellets. Sandstone, olive-gray, very fine grained, quartzose, calcareous. Siltstone, dark-gray, calcareous, argillaceous, carbonaceous near top of formation; Orthicoeloides common in all facies; weathers to saddle. Sharp contact with underlying Scott Peak and gradational contact with overlying formation of Bluebird Mountain; thickness about 122 to 152 m (400 to 500 ft)
TKbd14 SCOTT PEAK FORMATION (UPPER MISSISSIPPIAN)--Limestone, medium-dark-gray to dark-gray, fine- to coarse-grained wackestone and packstones, sandy and silty in lower part in places; mostly thick-bedded, locally thin- to medium-bedded; black chert and brown-weathering incipient chert nodules common in some beds; limestone weathers medium to light gray, some pale yellowish brown. Fossiliferous; fauna includes large rugose and colonial corals, productid and spiriferid brachiopods, bryozoa, molluscs, cephalopods, and foraminifers. Disharmonic folds common. Forms cliffs and steep talus covered slopes. Thickness about 550 m (1,800 ft)
TKbd15 MIDDLE CANYON FORMATION (UPPER TO LOWER MISSISSIPPIAN)--Limestone, medium- to dark-gray, silty and sandy, fine-grained wackestone to coarse-grained enclinite with variable amounts of chert. Black chert, in lenses and beds forms as much as 50 percent of lower part of unit in places. Form debris-covered smooth slopes in most places, and ledges where chert is prominent. Contact with overlying Scott Peak gradational. Estimated thickness 122 to 183 m (400 ft to 600 ft)
TKbd16 SCOTT PEAK AND MIDDLE CANYON FORMATIONS UNDIVIDED (UPPER TO LOWER MISSISSIPPIAN)--Formations mapped together near Fritz Peak
TKbd17 MCGOWAN CREEK FORMATION (LOWER MISSISSIPPIAN)--Thick lenses of basal limestone mapped separately in secs. 29 and 30 (unsurveyed), T. 12 N., R. 32 E. Medium-dark-gray to dark-gray, aphanitic, silty, argillaceous; weathers light olive gray to pale yellowish brown, medium light gray, some grayish red. Even-bedded; beds .15-.5 m (0.5-1.5 ft). Previously unreported rare fauna includes goniatites Paricoculus (Botopericoculus) Turner (identified by Mackenzie Gordon Jr., written commun., 1976), tetracorals, Rhopalolasma sp. (identified by W. J. Sando, written commun., 1976), brachiopods, shark teeth, conodonts, and meandering trails which resemble Nereites sp. The conodonts, Siphonodella ligosticha Cooper sensu Klapper (1971) and Elictognathus laceratus (Branson and Weh), 1938 indicate a Kinderhookian age, probably late Kinderhookian (John

- Repetski, written commun., 1976). Conformably overlies siltstone and shale of Sappington Member of Three Forks Formation; gradational contact with shale and siltstone of upper part of McGowan Creek Formation. Thickness 0 to about 91 m (0-300 ft)
TKbd18 MCGOWAN CREEK FORMATION (LOWER MISSISSIPPIAN) AND SAPPINGTON MEMBER OF THREE FORKS FORMATION (UPPER DEVONIAN)--Shale, siltstone and minor limestone: Shale, grayish-black and pale-yellowish-brown, noncalcareous, weathers dark gray. Siltstone, gray and yellowish-brown, laminated, noncalcareous. Limestone, medium-gray, (Mml), sheared in places, present locally; interval commonly forms saddle or gentle covered slope. Uranium minerals present locally (see also description of Jefferson Formation). Unconformably overlies Jefferson or Wilbert; gradational contact with overlying Middle Canyon Formation. Thickness about 30-120 m (100 to 400 ft)
TKbd19 JEFFERSON FORMATION (UPPER TO MIDDLE DEVONIAN)--Dolomite, minor dolomitic limestone, limestone-dolomite breccia, and conglomeratic sandstone: Dolomite, medium-gray, light-olive-gray, thin- to medium-bedded; weathers light olive gray and gray. Limestone, medium-gray, weathers yellowish brown and gray, contains brachiopods and conodonts. Limestone-dolomite sedimentary breccia, medium-gray, light-olive-gray, subangular fragments averaging 2 to 3 cm in diameter in carbonate matrix; weathers olive gray and gray. Basal conglomeratic sandstone, light-gray, laminated, calcareous, scattered quartz pebbles up to 6 mm (1/4 in.) in diameter; thin .3 m (1 ft), weathers light olive gray and yellowish brown. Entire formation forms smooth slopes with local ledges. Locally mineralized (uranium) and prospected in sec. 22, T. 12 N., R. 32 E., and secs. 7, 8, 16, T. 11 N., R. 32 E., Clark Co., Idaho. Unconformably overlies Wilbert in much of quadrangle; unconformable contact with overlying Three Forks Formation. Thickness 0 to about 60 m (200 ft)
TKbd20 WINNIKINIC QUARTZITE (MIDDLE ORDOVICIAN)--Orthoquartzite, light-gray, medium-light-gray, very fine grained to medium-grained, mostly well sorted; medium- to thick-bedded; local threadlike laminae; brecciated in places. Weathers medium light gray and pale brown. Occurs as isolated knobs in northwestern part of quadrangle. Scholten and Ramspeck (1968) report an unconformity at the base in the adjacent Scott Peak quadrangle to the west. Thickness 0 to 152 m (500 ft)
TKbd21 WILBERT FORMATION (PRECAMBRIAN 2)--Sandstone and dolomitic limestone: Sandstone, mostly pale-red, some pinkish-gray, grayish-orange, light-olive-gray, grayish-green, light- to dark-gray, fine- to coarse-grained, locally conglomeratic, quartzose, felspathic, micaceous, in places quartzitic, locally slightly calcareous; contains small amount of chert fragments; weathers reddish brown or dark yellowish brown; medium- to thick-bedded, crossbedded or laminated in places; highly fractured in places; dark minerals (iron minerals?) concentrated along bedding in many places. Dolomitic limestone, medium-gray, finely laminated, stromatolitic, in lenses in upper part, weathers medium light gray. Formation forms brown, smooth-weathering, moderately steep slopes; more than 244 m (800 ft) thick; base not exposed
TKbd22 INTRUSIVE ROCKS OF THE BLACK MOUNTAIN THRUST PLATE SYENITE (PRECAMBRIAN?)--Pink, orange, and brown, coarse-grained, granitoid rock consisting mainly of potassium feldspar extensively altered to sericite, about 10 percent hornblende(?) completely replaced by chlorite and opaque dust, and very minor quartz, sodic plagioclase, and apatite
TKbd23 MEDICINE LODGE BEDS (LOWER PLIOCENE OR UPPER MIOCENE)--Tuffaceous lacustrine mudstone, tuff, travertine limestone, and gravel: Tuffaceous lacustrine mudstone, light-brown, yellowish-gray, and light-gray, soft, easily eroded, highly susceptible to landsliding, thick, makes up most of unit. Travertine limestone, massive, fresh-water, forms prominent ledge as much as 50 m thick at top of formation. Airfall tuff, biotite rich,

- present in upper part of sequence. Conglomerate wedges locally present near margins of depositional basin, such as southeast of Black Mountain. Thickness of entire unit 0-300 m (0-1000 ft)
SEDIMENTARY ROCKS OF THE TENDAY ALLOCHTHON (Skipp and Hait, 1977)
TKbd24 BEAVERHEAD FORMATION (Divide quartzite conglomerate unit) (EOCENE(?) TO LOWER(?) CRETACEOUS)--Conglomerate, sandstone, and minor carbonaceous shale: Conglomerate, gravel consists of well-rounded to subrounded clasts: up to 1 m (3 ft) in diameter of quartzite, sandstone, limestone, chert conglomerate, volcanic rocks of intermediate and felsic compositions, and granitic gneiss. (Quartzite clasts, grayish-red, reddish-brown, medium- to dark-gray and white, fine- to coarse-grained, resemble Precambrian Y, Precambrian Z and Paleozoic rocks of south-central Idaho; sandstone clasts, medium-light-gray, weather yellowish brown, some calcareous, resemble Precambrian and upper Paleozoic rocks of south-central Idaho; limestone clasts, medium-gray, cherty, resemble upper Paleozoic rocks; chert granule to pebble conglomerate clasts resemble upper Paleozoic flysch conglomerates; source of volcanic rocks unknown; the few cobble-size clasts of granitic gneiss resemble Precambrian X rocks.) Conglomerate imbricated, crude horizontal bedding; beds up to 2 m (6 ft) thick, channels common. Interbedded sandstone is olive gray, coarse grained to conglomeratic, weakly indurated, and cross bedded in places, calcareous with brown-weathering "cannon ball" concretions. Palynomorphs (sample D5605) collected by R. T. Ryder from a thin carbonaceous shale bed in the E 1/2 sec. 16, T. 13 N., R. 33 E. and identified by R. H. Tshudy (written commun., 1976) indicate a probable late Late Cretaceous age. Divide quartzite conglomerate unit interbedded with limestone conglomerate unit (TKbd1); forms barren steep-sided slopes near the continental divide; thickness may be more than 4,570 m (15,000 ft) in Clark County, Idaho, (Ryder and Scholten, 1973). More than 2,130 m (7,000 ft) estimated in secs. 11, 14, and 22, T. 13 N., R. 33 E. MELANOPHILITE (PRECAMBRIAN?)--Dark-gray to dark-brown, very coarse grained granitoid rock consisting of about equal proportions of slightly sericitized plagioclase and hornblende, with a few percent each of biotite, magnetite, potassium feldspar, and apatite
REFERENCES CITED
Epstein, A. G., Epstein, J. B., and Harris, L. D., 1977, Conodont Color Alteration--an Index to Organic Metamorphisms; U.S. Geological Survey Prof. Paper 995, p. 1-27.
Ryder, R. T., and Scholten, Robert, 1973, Syntectonic conglomerates in southwestern Montana; their nature, origin, and tectonic significance; Geological Society of America Bulletin, v. 84, no. 3, p. 773-796.
Scholten, Robert, Keenmon, K. A., and Kupsch, W. O., 1955, Geology of the Lima region, southwestern Montana and adjacent Idaho; Geological Society of America Bulletin, v. 66, p. 345-404.
Scholten, Robert, and Ramspeck, L. D., 1968, Tectonic mechanisms indicated by structural framework of central Beaverhead Range, Idaho-Montana; Geological Society of America Special Paper 104, 71 p.
Skipp, Betty, and Hait, M. H., Jr., 1977, Allochthons along the northeast margin of the Snake River Plain, Idaho: Wyoming Geological Society Guidebook, Twenty-Ninth Annual Field Conference, p. 499-515.
EXPLANATION
CONTACT--Dashed where approximately located
NORMAL FAULT--Dashed where approximately located; dotted where concealed. Solid bar and ball on downthrown side; if two periods of movement in opposite directions are recognized, a hollow ball indicates the earlier movement
THRUST FAULT--Dashed where approximately located; dotted where concealed
FOLDS--Showing trace of axial plane; dashed where approximately located
Anticline--Indicating direction of plunge
Overturned anticline--showing direction of dip of limbs
Syncline
Overturned syncline--showing direction of dip of limbs
STRIKE AND DIP OF BEDS
Horizontal
Inclined
Vertical
Overturned
POLLEN AND SPORE LOCALITY
CONDONOT COLOR ALTERATION INDEX (Epstein and others, 1977)
MINES AND PROSPECTS
Adit
Prospect pit