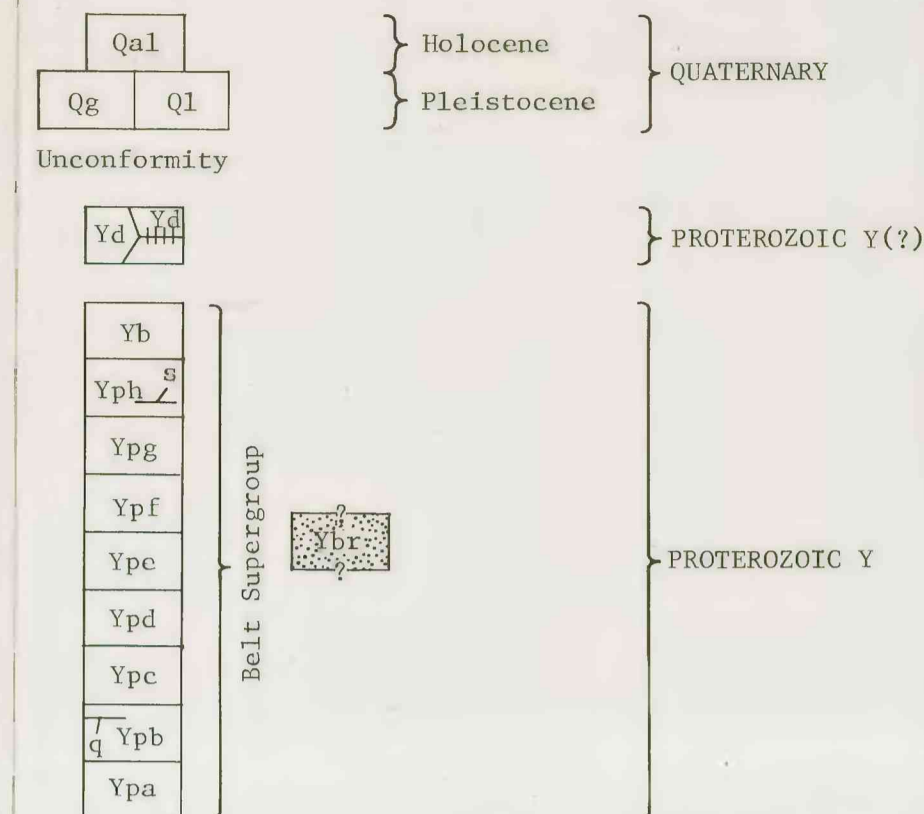




CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qal ALLUVIUM (HOLOCENE)—Gravel, sand, silt, and clay associated with present drainage
- Ql LAKE BEDS (PLEISTOCENE)—Light-gray laminated silt containing lenses of gravel. Deposited in glacial Lake Missoula
- Qg GRAVEL (PLEISTOCENE)—Mostly angular to subangular pebbles to boulders of locally derived quartzite, siltite, argillite, and diabase deposited as gulch fills and gravel bars where streams emptied into glacial Lake Missoula; in part deposited or modified by torrential currents during catastrophic emptying of lake. Contains some pebbles to boulders of greenish-gray, pink, and red argillite and quartzite probably ice-rafted from upper part of Belt Supergroup exposed southward up Clark Fork
- Yd DIABASE SILLS (PROTEROZOIC Y?)—Dark-gray fine- to medium-grained diabase in sills several meters to nearly 400 meters thick
- Yb BURKE FORMATION, BASAL PART ONLY (PROTEROZOIC Y)—Interbedded quartzite, siltite, and interlaminated siltite-argillite. Quartzite is medium gray to olive gray, in beds 0.1 to 0.4 m thick and sets of beds as much as 15 m thick; locally cross-laminated. Siltite is medium gray, weathers moderate gray, in beds 0.1 to 0.2 m thick and sets as much as 20 m thick; cross-laminated, and contains scour-and-fill structures. Interlaminated light-gray siltite and medium-dark-gray argillite weathers moderate brown; in sets tens of meters thick; laminae wavy, lenticular, and cross-laminated; exhibits some scour-and-fill structures
- Yph PRICHARD FORMATION (PROTEROZOIC Y) Member H—Medium-dark-gray to light-olive-gray argillite and medium-dark-gray argillite siltite in couplets mostly 1 to 3 cm thick; argillite generally makes up 2/3 to 3/4 of couplet; weathers moderate brown. Basal 200 m contains some quartzite in beds 5 to 25 m thick and sets as much as 3 m thick. Some pyrite laminae in basal part. A unit, 90 to 120 m thick, of interbedded siltite, quartzite, and argillite occurs 610 m above base of member near Patrick's Knob and Patrick Creek; siltite and quartzite contain ripple marks; top of interval mapped as key bed s. Thickness of member uncertain, but probably about 1,600 m
- Ypg Member G—Interbedded quartzite, siltite, and argillite: Quartzite is medium gray to medium dark gray, weathers dark gray; in beds mostly 0.2 to 0.5 m thick and in sets as much as 5 m thick; beds mostly structureless, but some are planar laminated. Quartzite commonly grades to argillite in uppermost few centimeters of each bed. Siltite is medium gray, weathers light olive gray; in planar beds 0.1 to 0.2 m thick and in sets 1 to 2 m thick; planar lamination common. Argillite is medium light gray to greenish gray, weathers moderate brown; planar laminated; in sets as much as 5 m thick. Member commonly weathers to blocky talus. Thickness about 500 m

- Ypf Member F—Interlaminated and very thinly interbedded dark-gray silty argillite and medium- to light-gray argillite; layers commonly 1 to 6 cm thick, giving banded appearance to rock; silty layers commonly contain argillite laminae, carbonaceous laminae, and locally, pyrite laminae. Lower part of member contains a few argillite beds as thick as 0.5 m that weather to form light gray and appear massive. Several layers of argillite-pebble conglomerate are present 150 to 175 m above base of member in roadcut on Montana Highway 135 south of Siegel Creek. Member weathers to abundant platy float. Thickness of member uncertain, but is estimated to be about 975 m south of St. Mary's fault and about 1,100 m north of the fault
- Ype Member E—Interlaminated siltite and argillite and minor interbedded quartzite, all with current-produced structures such as channels and channel fill and crossbedding, and some with mud cracks and mud-chip breccia indicative of periodic exposure; mud cracks most common in upper part and channel fill in lower part. Quartzite interbedded throughout member, but interbeds thickest and most abundant in lower part; quartzite units discontinuous. Member commonly crops out in cliffs and bold ledges. Thickness about 825 m
- Ypd Member D—Platy-weathering olive-gray silty argillite that contains randomly oriented chlorite porphyroblasts and sparse garnet. Some interbedded quartzite present in lower part. Argillite graded upward to very thinly interbedded argillite and siltite near top of member. Thickness about 290 m
- Ypc Member C—Chiefly medium-gray to medium-light-gray quartzite in beds 0.4 to 0.6 m thick and in sets 1 to 10 m thick; quartzite commonly grades to argillite in top 1 or 2 cm of each bed; beds mostly structureless, but some are planar laminated, and tops of some beds are cross-laminated. Contains some interlaminated siltite and argillite in sets mostly 2 to 3 m thick. Member 75 to 110 m thick
- Ypb Member B—Mostly graded siltite-argillite couplets that range from several millimeters to several centimeters thick; siltite is mostly dark gray and argillite; argillite is mostly light gray and silty; some silty layers are light colored and cross-laminated. Member contains abundant slump folds, mostly 0.3 to 0.5 m thick, though some are as thick as 10 m; slump folds commonly stacked in compound sheets mostly about 8 m thick but locally as much as 25 m thick; slump sheets make up about 15 percent of member. A quartzite unit as much as 30 m thick is locally present in the interval from 250 to 500 m below top of member; top of quartzite unit mapped locally as key bed q. Thickness of member uncertain but estimated to be about 1,000 m
- Ypa Member A—Consists of siltite-argillite couplets similar to those of member B, but does not contain slump folds or quartzite. Contact with member B placed at lowest diabase sill. About 600 m exposed
- Ybr BRECCIA (PROTEROZOIC Y)—Angular, lath-shaped fragments, mostly 2 mm or less in length and mostly argillite, in poorly sorted argillite siltite matrix; fragments make up about 30 percent of rock; breccia commonly well cleaved. Formed before regional metamorphism and before intrusion of sills. Inferred to have resulted from slumping of members C, D, and E before or during early stages of deposition of member F

- CONTACT—Dashed where approximately located. Short dashed where inferred. Dotted where concealed
- HIGH-ANGLE FAULT—Dashed where approximately located,
- THRUST FAULT—Dashed where approximately located. Short dashed where inferred. Sawtooth on upper plate
- STRIKE AND DIP OF BED

GEOLOGIC MAP OF PARTS OF THE PLAINS AND PERMA QUADRANGLES, WESTERN MONTANA

By
E. R. Cressman
1981