DESCRIPTIVE NOTES

PHYSIOGRAPHY

Keno Hill map area lies between the headwaters of the Hess Ladue River and Mayo Lake. The South McQuesten River drains south-eastward from near Haggart Lake and both broad river valleys and Mayo Lake, are at 2000 feet elevation. In the center of the map area is the Dublin Gulch Range. Mount Haldane forms the core of the range and has nearly summits about 5000 feet elevation. At least an incubus has intruded within the range but none have completely exposed. These intrusions are Keno Hill Granite and its apophyses in the south, and near Duncan, Lightning and Flash creeks in the north. Two glacial valleys, the economically important Hunker and Dakota Hills are separated from Dublin Gulch Range by Duncan Creek and along tributary Lightning Creek. Almost all the ranges within the map area have a dissected, mesa-like appearance in areas underlain by Keno Hill Quartzite.

QUATERNARY HISTORY

In common with the Quaternary period, is characterized by multiple glacial and interglacial events. The build-up of ice in Yukon consisted of glaciers originating from accumulation zones in the Ogilvie, Wernecke, Selwyn, Pelly, Cassiar, and St. Elias mountains. Ice from these centers coalesced and flowed down and the dendritic drainage region. Upon the Continental ice sheet, commonly glaciated and local alpine glaciers from the Dublin Gulch Range developed widely in the map area. From glacial to Quaternary these were the pre-Reid (early Pleistocene), Reid (middle Pleistocene) and the McConnell (late Pleistocene) glaciations.

The pre-Reid glaciations represent multiple unidentified glaciations that occurred approximately between 2.5 Ma and 400 ka. Landforms resulting from these glaciations are strongly controlled by erosion and are difficult to identify. In Keno Hill map area remnants of the pre-Reid glaciations are limited to isolated erratics above the Reid limit and infrequently to deposits below. Reid glacial sediment. More commonly, preserved are pre-Reid interglacial deposits from Duncan and upper Duncan Creeks. Non-exhaustive pre-Reid glacial erratics were noted on Keno Hill at 5000 ft and 5400 feet. Interfluve plateaus at 5000 feet, glacial meltwater incised as much as 1000 feet, and flats at 5000 feet are in the Dublin Gulch Range. The only pre-Reid glacial deposit seen was the head-waters of Thunder Gulch.

The Reid glaciation occurred at least 300,000 years ago (500 ka) (Bengtson, 1984) and likely folio-ed earlier fluvial-ice (the McConnell glaciation. Reid ice advanced into the map area from the east, following the regional drainage. The main pathway for the passage of ice was the Hess Ladue River, Granite Creek, Mayo Lake and South McQuesten River valleys. From the Hess Ladue River valley, ice advanced up Flash Creek and Haggart Creek. Ice also passed into the Mayo Lake valley. Highest Duncan and Upper Duncan Commander ice from these sources flowed west-and south-lightning Creek and merged with Hess Ladue ice and along Quartz Creek near Keno City. Commander ice in the area flowed south into the Duncan Creek drainage and also transported the drift between Thunder Gulch and upper Duncan Creek. Numerous erratics and a kame deposit were noted on the interfluve between these two drainages, which also marked the same for upper Duncan Creek possessed with Continental Creek and Duncan Creek during the Reid glaciation. Till fabrics from upper Duncan Creek indicate that during the waning stages of the Reid glaciation ice-flow was reversed and ice from the Dublin Range and the area to the south flowed up Duncan Creek. Ice also along south from Duncan Creek likely drained into Mayo River ice also along up the drainages as suggested by McConnell-flow patterns in the area. The combined ice from Mayo River valley and the Hess Ladue valley. In Duncan Creek, was likely stationary until it could flow over the divide between Williams Creek and Quartz Creek on Galena Hill. Ice also entering the Mayo Lake valley consisted of combined westward ice flow from the Flood (north) and Wasson (south) arms. On the east side of the Dublin Gulch Range, ice from the Hess Ladue area also advanced up the Granite Creek drainage and over the divide into Haystone Creek. Haystone Creek has a more distinct erratic which suggests limited ice movement through the drainage as a result of high divides on the north and south. The interpreted orientation of Reid flow-patterns likely also implies its susceptibility to deforming during glaciations resulting in the deposition of glaciotectonite sediment. Alpine glaciers from upper Granite Creek and Mount Haldane contributed ice to the area.

The McConnell glaciation is estimated as the last advance into the map area between 11,000 and 80,000 years ago (Bond, 1997). The advance of alpine glaciers originating in the Dublin Gulch Range reached their maximum limits and by processing the Continental ice, which entered the Keno Hill map area via the Hess Ladue, South McQuesten, and Mayo Lake valleys. Hess Ladue ice also advanced up Haggart Creek and merged with local ice from Haggart Creek, McKellar Gulch, and McKellar Gulch. Ice continued across south-lightning Creek, more than 1 km west of the mouth of McKellar Gulch. Hess Ladue ice also advanced southward to the west side of Granite Creek and terminated immediately south of Keno City. The current channel of Lightning Creek near Keno City occupies an ice-marginal meltwater channel that was glacier-McConnell Duncan ice-flow was dissected at lower Lightning Creek and Duncan Creek. A good example is on the left bank of Duncan Creek, where a 30 m section of Reid till is overlain by 5 m of McConnell glaciofluvial sediments