

'OPERATION KENO'

cological Survey of Canada carried Put its first helicopter supported reconnaissance geochemical sampling program. Known as 'Operation Keno', this program involved the ection of over 7,770 heavy mineral, rock, and stream sediment and water samples om a 4,920 sq km area centered on Keno Hill in







rew with Bell G2 helicopter, R.W. (Bob) Boyle second from left. 'Calibration Day', field crews training in standardized proceedures



esults of the 'Operation Keno ram were released 1965 and 1972 as a series ps (see image) ples within the McQuesteno-Keno area (outlined in red) ich returned anomalous values, at above the 95th percentile, for ld, arsenic and/or antimony have nce been manually digitized and led and are represented on the ntral map shown to the right.



Glacial limits and ice flow patterns are shown in relationship to placer activity in the McQuesten-Mayo-Keno region. The distribution of gold in heavy mineral concentrates from stream sediments (Boyle and Gleeson, 1971) is indicated ($\frac{1}{\sqrt{2}}$) and represents samples anomalous at or above approximately the 90th percentile.

A GOLDEN LINING TO A SILVER DISTRICT Overlooked Geochemical Data Targets Gold in the McQuesten-Mayo-Keno area, central Yukon

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INTRODUCTION

Recognition of the importance of the Mid-Cretaceous (~92 Ma) Tombstone Plutonic Suite as host or source, or both, of Au mineralization was highlighted with the discovery of the Brewery Creek mine near Dawson City and the Fort Knox deposit near Fairbanks in the 1980's and early 1990's. Throughout the 1990's research and renewed interest in the exploration for intrusionrelated Au resources served to refine understanding of the spatial relationships and metal assemblages of these occurrences, which display a wide range of morphological characteristics and settings; including intrusion-hosted sheeted veins, proximal stockworks, skarns and replacement zones, carbonate and non-carbonate distal disseminations and shear or fissure quartz sulfide veins.

MINING HISTORY

Placer gold was discovered on the Stewart River in 1883 and by the summer of 1895 prospectors stampeding to the area were recovering up to \$100/day from the river bars, providing the grubstake to fund exploration further to the east. Discovery claims were recorded on Johnson and Haggart Creeks in 1898 and by 1903 discoveries had been made on the creeks flowing into Mayo Lake and in the Minto Creek region. The first lode discovery was recorded at this time when the Silver King vein was found, staked and subsequently high-graded on Galena Hill. In 1919, rich silver-lead ore was discovered on Keno Hill sparking another staking rush in the area during which prospectors claimed much of the ground on Keno and Galena Hills. In 1945, after 25 years of smaller scale mining by various companies, United Keno Hill Mines Ltd consolidated most of the existing properties becoming the single largest operator in the area until its closing in 1989. Since that time exploration activity in this area has been mostly focused on a handful of intrusion related Au targets, recently highlighted by approximately \$1.5 million worth of diamond drilling on the McQuesten and Aurex properties.

EXPLORATION POTENTIAL

To date more than 4.28 million grams of placer gold production has been reported from the creeks in this region, over 40% of this total or nearly 1.75 million grams having been recovered from Duncan Creek, its tributaries and the creeks surrounding Mayo Lake in an area where a mineralized bedrock source has not yet been identified. Highlighting this region's prospectivity to host proximal and distal intrusion-related Au mineralization is the overlooked data from the 'Operation Keno' sampling program. A review of this data reveals strong gold pathfinder element (As-Sb) anomalies in the underexplored area north of Mayo Lake, in the distal parts of the system surrounding the known and mainly intrusion-hosted deposits at Dublin Gulch, and in the area immediately to the south of this system where sampling revealed high concentrations of gold in heavy mineral concentrates from the upper forks of Shanghai Creek.





Although McQuesten area mineralization isn't similar to Carlin mineralization, its geological setting is. Gold mineralization in the Carlin trend is located proximal to steep structures that cut the folded Roberts Mountain Thrust Fault. Mineral deposits are mostly located within 250 metres of and generally below the thrust fault. In particular, mineralization is focused in shallow features that result in permeability contrasts (thrusts, anticlines, sills, lithological contrasts) mostly near their intersections with high angle structures. The McQuesten area is characterized by the Robert Service and Tombstone Thrust faults which are folded into the McQuesten antiform, then cut by the McQuesten River Fault. Gold mineralization at Aurex/ McQuesten best fit this model occurring within the Robert Service Fault.



Total field aeromagnetics integrated with significant geological features.

SELECTED REFERENCES

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