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GENERAL PRELIMINARY REPORT OF TOGIAK LAKE REGION,

August 9-20, 1937.

Introduction:

New discoveries of placer gold were reported made by Eskimos, Lapp reindeer herders, and white prospectors at various points in an area headed by the Togiak, Kanektok, and Eek rivers during the past season. Mining was reported in progress by the natives, and a drill was in operation on the new discoveries on Eek River. Many requests were received concerning these discoveries. The Eek River Mining Company officials wanted information in regard to drilling. Information regarding the placer deposits on Rainey and Capawon creeks was lacking. The following information is compiled from observations, information from prospectors, and reports. Eleven days were spent in the field in this section.

Location, Accessibility and Drainage:

The Togiak Lake region is located in the Bristol Bay precinct of the Third Division and inland a distance of 75 miles from the northern shore of Bristol Bay. Togiak Lake lies between two divides, extending in a north and south direction. The drainage over the divide to the east flows into the Wood River Lakes and to Nushagak Bay. The drainage on the west flows down the Kanektok River to Kuskokwim Bay.

The best means of reaching this region is by airplane, which make landings on Togiak, Kagati or Quinhagak lakes with pontoons, or on Al Jones' landing field near the head of Eek River. Other landings have been made on gravel bars near the head and along upper Togiak River. Planes can be contacted at Bethel, Platinum or Dillingham. Rates vary from $30 to $50 per hour. This region can also be reached with poling boats up the Togiak River from its mouth at Togiak. This river is navigable to Togiak Lake, with a few rapids which can be poled during low water stages. This is the shortest route by boat. The other route is up the Kanektok River from Quinhagak on Kuskokwim Bay. This river is navigable with river boats to Kagati or Quinhagak Lake.

Topography and Glaciation:

The mountains in this region occur as individual nests clustered around the intrusives and extending in elongated directions in a northeast-southwest direction. The central intrusive cores rise to heights of 3,000 to 7,000 feet while the surrounding peaks range between 2,000 and 3,000 feet. The highest mountain is Mt. Oratia, which rises to a height over 7,000 feet. Other mountains in the region are Piskuk Peak, Atayak Mountain, Tiokpit Mountain, and several other unnamed peaks. The higher mountains show considerable evidence of

glaciation, which as a result has left many steep walled valleys, pinnacle peaks and mountain lakes. However, no glaciers exist at the present time. Most of the glacial valleys lead down and connect up with the wide structural valleys between the mountain masses. Small glaciers no doubt joined with the larger glaciers that followed the structural valleys toward the sea. These wide valleys contain the present drainage systems. However, many lower mountains, ridges and areas escaped glaciation. These contain a different, more rolling and less irregular topography. These areas were no doubt low enough to have escaped glaciation from above, and missed the large glacial masses which followed only the lower topography. In these latter areas, with their small drainage systems, most of the placer prospects were noted. The upper valleys of the Eek, Kanektok and Togiak rivers all occupy large wide glacial valleys. These are easily distinguished by their shape, presence of existing lakes, character of the gravels, and the marginal moraines along the sides of the valleys. Drainage systems of the unglaciated areas are considerably changed and altered. The important feature in prospecting within this region is to recognize the glaciated valleys from the unglaciated or slightly glaciated valleys and areas.

General Geology:

Only the northwest section of this region was visited by the writer, which extends from the northwest slope of Piskuk Peak northwest to the northwest slopes of Mt. Oratia, following the watershed of the upper Kanektok and Eek rivers.

General geology of this region is shown on a small-scale map, extending from Lake Clark to the Bering Sea, of the entire lower Kuskokwim region. This map is contained in U. S. G. S. Bull. 622, "Mineral Resources of Alaska, 1914," by A. H. Brooks et al. The formations as given on the map range from Paleozoic and older schists, slates, crystalline limestones, and volcanic rocks, Mesozoic sandstones, shales, conglomerates, late Mesozoic or early Tertiary intrusives and sedimentary sandstones and shales to recent unconsolidated gravels, silts, etc. The section east of Togiak Lake, and extending southwest, is a wide band of Mesozoic sandstone, shale, etc. The section west of the lake and river consists of a belt of Paleozoic schist, slate, crystalline limestone, etc. Adjoining this belt on the west and extending southwest beginning with Piskuk Peak, a series of intrusives are in contact with these older sediments. Northwest of Piskuk Peak and on the west contact of the intrusives, the Mesozoic sediments again occur. These belts of sediments, as they occur intermittently, were observed in the route traveled between Piskuk Peak and Mt. Oratia.

The headwaters of the Kanektok River consist of several small streams flowing into the large valley which this river occupies. These large valleys contain early Tertiary sandstones and shales which are in part coal-bearing. Narrow seams of lignite coal were observed along the banks of the river in its upper portion, where it and its tributaries are intrenched in the soft sediments. Placer gold has been found by native Eskimos at the heads of these tributaries.

Directly north of Kagati Lake lies Mt. Oratia. This is a large intrusive mass of granitoid rocks and intrudes both Paleozoic and Mesozoic sediments. Quartz antimony veins were found at the head of Atmugiak Creek, which flows into Kagati Lake. Placer gold prospects have been found in a few of the creeks that head on the west slope of this mountain. Eek River heads in a small lake that lies on the slope of Mt. Oratia on the northwest side. The river flows south for a few miles and encounters a marginal glacial moraine, turns west around the end of an elongated ridge of well worn hills and enters a wide glacial valley flowing north and west. This valley is over a mile in width and continues northwest until it reaches the level coastal plain, where it terminates. Thence Eek River turns west and begins its meandering course through low hills and over the flat coastal plain to Kuskokwim Bay. Gold has been found on the short tributaries that flow from the elongated ridge which the river itself flows around. The most important of these are Rainey and Capawon creeks. Prospects of gold were found on Eek River and the river is staked for several miles below Eek Lake.

New placer gold discoveries were made by native Eskimos and Lapps on Trail Creek, a tributary at the head of Togiak River, in the fall of 1936. Mathew Spain (a Lapp) made the discovery and this season he was reported ground sluicing on the discovery. Only a few ounces were reported obtained. Six native Eskimos were engaged in mining below Spain on Trail Creek.

Mr. Oscar Dahl made an investigation of these discoveries during July of this year. He reported Trail Creek as a tributary of upper Togiak River (note sketch) flowing west and south from the divide drained on the north by Keeler Fork, a tributary of the Quithluk River. It flows over most of its length in a box canyon with a steep gradient. Numerous large boulders were observed in the bed, and the gravels were three to four feet in depth. The valley showed evidence of glaciation. Most of the gold found by M. Spain was under or alongside the large boulders. As a result of his prospecting his opinion was that the creek and discovery are not of importance other than for sniping.

He further reports that Togiak River below Trail Creek has been staked for several miles. He further expressed the opinion that the valley with its wide nature, glacial evidence and apparently deep gravels was not of importance. No work was in progress on these lower claims. With the above information, the writer was of the opinion that these discoveries did not warrant investigation.

Alfred and Ole Anderson were reported ground sluicing on a tributary of Fork Creek, and Herman Oman was reported mining on Canyon Creek. Details regarding these placer deposits and the Golden Butte quartz prospect on Canyon Creek, with geology, is contained in a report by F. W. Holzheimer, 1926. He describes the formation as consisting of rhyolite tuff, chert, argillite, conglomerate, quartz porphyry and black slate. These are possibly the Paleozoic series of sediments as shown on the map at page 268, Bull. 622.* These sediments no doubt extend south in the vicinity of Trail Creek which was reported five miles south of Canyon Creek.

Prospects: 91-24 141-25

The most promising prospects found in the Eek River section occur on Rainey Creek. Gold was discovered here by Neil Corrigal in 1920. He and associates worked the creek for four seasons and $4500 from two creek claims was recovered. Later natives mined for one season and obtained $600 in gold. Last season fifteen claims were staked by F. C. Wiseman, Neil Corrigal and Gilbert McIntyre of Bethel.

Rainey Creek has a length of 6 miles and runs into Eek River on the right limit, approximately 15 miles below Eek Lake. Rainey heads near the center of an elongated ridge of well worn hills. This ridge of hills extends nearly 20 miles in length, starting on the northwest side of Mt. Oratia and extending southwest between Mt. Oratia and Eek River valley. The ridge itself is an anticlinal structure of folded sediments of sandstone, slate, graywacke and some intruded porphyry. This anticlinal structure appears to have been caused by an intrusion underneath which elevated the sediments. This intrusion caused a hardening of the sediments along the contacts and with the wearing down of the surrounding country, this ridge remained in its present elongated, elevated position. While the intrusive itself does not apparently show on the surface, it is no doubt present underneath. The wearing down of the sediments and the related porphyry containing the mineralization is probably the source of the placer gold found in the creeks. The accompanying sketch shows the location of the discoveries on Rainey Creek and the head of Capawun.

*Op. cit., p. 2.

The gravels on Rainey Creek extend across a width of 200 to 300 feet and vary from 5 to 12 feet in depth. They contain numerous well worn boulders of small size, water worn, and which range in size from 4 to 18 inches in diameter. They are flat and oblong in shape, and consist of graywacke arkose, sandstone, with an occasional lava boulder. The bedrock consists of graywacke, slate and shale. Small quartz stringers occur in the graywacke and slate and contain a sparse mineralization. A pan taken from the gravels near bedrock along the bank of the creek on the upper discoveries showed 12 medium to large colors, some of which were rounded and well worn and others rather rough. Black sands, pyrite, arsenopyrite, realgar and orpiment were the associated heavy concentrates.

The workings consist of several cuts of small size and two bedrock drains. From the cuts worked Neil Corrigal reported the ground running 25 cents a bedrock foot.

Located 300 feet above the upper discoveries on Rainey (note sketch) several small gash veins and irregular masses of nearly pure realgar and orpiment occur on the bank of the small tributary. Small quartz veins are associated, and the quartz is mineralized with pyrite and arsenopyrite. The formation is interbanded graywacke, sandstone, and a slaty shale.

A sample taken from a 6-inch vein assayed 10.8 per cent arsenic and no mercury.

Gold was found in small amounts in the gravels at the head of Capawun Creek. Some mining has been done 5 miles down on Capawun from its head. This creek has a length of 10 miles and flows northwest, emptying into Eek River approximately 12 miles below the mouth of Rainey. The head of Capawun has a steep gradient. The bedrock consists of slates, shales, and graywackes. The lower section, as seen from the air, flows out into a glacial valley.

The Eek River Mining Company, formed by Al Jones and associates, has several miles of placer holdings on Eek River extending from above the mouth of Rainey Creek to below Eek Lake. The following sketch shows the location of the discoveries and drill holes. Drilling with an airplane drill was in progress prior to the writer's visit to this section. Three holes were drilled between depths of 40 and 60 feet on the right limit of Eek River five miles above the mouth of Rainey. Bedrock was encountered in the first hole near the bench, but not in the other two holes. Small copper nuggets were found and an occasional speck of gold. Outwash glacial gravels were encountered with some blue clay. This region no doubt was a worn topography prior to glacial times as the glacial gravels contain numerous worn and rounded boulders scattered with the glacial debris.

The ice action was the predominating factor in controlling and altering the present drainage systems. This is very much in evidence on upper Eek River and in the section where the drilling was done. Above the location of the drilling, Eek River is intrenched, cutting across the strike of the sediments. This intrenchment has been since glacial times and was caused by the damming action of the marginal moraine in the wide valley to the south. Shallow gravels are distributed in the valley across the width of the intrenchment, a distance of 200 to 300 feet. Placer gold prospects were discovered in these gravels. Panning the dumps of the pits revealed only a few fine colors.

A small creek named Cloudy Creek flows from the west slope of Mt. Oratia northwest, and enters Eek River above the latter's entrenchment. At the head a few colors were found in the gravels. The lower 3 miles of Cloudy flows alongside the marginal moraine and its bed is composed of numerous glaciated boulders. Several claims have been staked on this creek.

Along a small creek locally known as Iron Creek, a tributary at the head of the Kanektok River, located 15 miles southeast of Kagati Lake and 3 miles west of Nenevokuk Lake, a placer gold discovery was made by two natives, Guy Tegylre and Wm. Kiseyulia. This creek has a length of 10 miles and joins the Kanektok River 5 miles above Kagati Lake. Twenty claims are staked in a group. Mining was in progress with two automatic dams. This creek is intrenched into shale and sandstone sediments with a valley that averages 300 feet in width. The discoveries are near the head in shallow gravels and near the mouth of small gulches that enter from the east. The accompanying sketch shows the upper portion of the creek. Mining had just started and most of the time was spent in building dams and drains. Three ounces of gold was recovered. Further test pits were put down and these only showed very low values. Approximately one or two cent pans on bedrock were the best obtained. There has not been sufficient testing or work to determine the extent of the values.

Two small quartz stibnite veins were visited at the head of Atmugluk Creek, a small creek that flows from the northeast into Kagati Lake. Seven claims were staked this season and it is known as the Winchester group. A separate lode report contains a description of this property.

Conclusions:

Prospecting is warranted in this region for placer gold deposits, but it must be limited to the creeks in the unglaciated areas. The areas nearest to the intrusives with favorable creeks through them are the best areas to investigate. Prospecting in the glacial valleys or moraines is not favorable.

Three favorable areas are known, however, further investigation is warranted before definite conclusions can be drawn. The elongated ridge on the west slope of Mt. Cratia, the rolling country southwest of Piskuk Peak, and the area west of Eek River in the vicinity north of Mt. Tiokpit warrant investigation. Further testing of Rainey and Capawun creeks is also warranted.