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MARGINAL NOTES LOCATION AND ACCESS: The Crow River area, approximately 125 miles (200 km) northeast of Sioux Lookout, extends along Crow River east of Pickle Lake through Ponsford, Connell, and McCullagh Townships. The area can be reached by the transcontinental line of the Canadian National Railways or by air from Sioux Lookout. There are two air strips and facilities for float-equipped aircraft. Pickle Lake can be reached by Highway 599. MINERAL EXPLORATION: Between 1903 and 1905 Wm. McInnes made a reconnaissance survey along the Crow River for the Geological Survey of Canada (McInnes 1912). Jas. E. Thomson mapped the properties in detail for the Ontario Department of Mines In 1926, two prospectors, George Simmons and Bill Seiger located a band of mineralized iron formation at the site of the Central Patricia No. 1 shaft. The ground was staked in late 1927 by Alex & Murdoch Mosher for a syndicate which optioned the claims to F.M. Connell and associates in 1928. In early 1929, Central Patricia Mines Limited was incorporated and a diamond drilling program was started. The following spring underground development was started and by 1934 a mill with a capacity of 50 tons per day was put into operation. Albany River Mines Limited staked claims to the northeast. TPa. 3397 A gold deposit was discovered. During 1936 and 1937, a 640-foot (195 m) shaft was sunk, with levels at 125-foot (38 m) intervals. By 1940, several small ore shoots were noted. In 1941, the Albany River Mine (then under Pickle Crow Gold Mines Limited) was shut PICPAT H.H. Howell and J. McFarlane discovered the Howell Vein on ground of Northern Aerial Minerals Exploration Limited. In 1933 Pa. 2622 3 years after trenching and diamond drilling, shaft sinking began Pickle Crow Gold Mines Limited was incorporated in 1934 to take over the property. Amalgamation and cyanidation of the ore began A small gold-bearing quartz vein was located on the Springer claims to the southwest. The claims were first optioned to F.M Connell and at a later date Central Patricia Mines Limited took over. In 1935, a three-compartment shaft was sunk with drifting Scale: 1 inch to 500 ft or 1:6,000 at the 150-foot (45 m) level. The shaft was deepened and by 194 the deposit yielded 13,158.42 ounces of gold from 18,886 tons o ore milled. In 1940, Springer Mines closed after exhaustion of Expansion of producing mines and surface exploration at other properties led to the discovery of the No. 2 vein system held by Pickle Crow Gold Mines Limited. By 1942, gold mining was classified as a non-war industry By the end of 1947, all surface exploration, except, on properties held by the two producing mines, had been brought to a halt. In 1951, a gold-bearing vein (No. 5 vein) and a deposit of auriferous sulphide were discovered near the No. 1 shaft on the Pickle Crow property. GENERAL GEOLOGY: The map-area is underlain by metavolcanics, metasediments and intrusive rocks of Precambrian age. ===== The metavolcanics of Early Precambrian (Archean) age constitute over 60 percent of the map-area. The extrusive lava, the most abundant, is andesitic to basaltic in composition, massive to schistose. Colours range from light to dark green and from grey to greenish grey. Generally primary features are not exhibited but in places pillows, developed locally and not destroyed by shearing, indicate directions in which flow tops face. Porphyritic and variolitic lavas have been noted in a few localities (Thomson 1938, p.6). The fine-grained intermediate and mafic lava grades imperceptibly into medium-grained, dark greenish grey metadiabase. ne metadiabase, which appears to conform with the banding of he adjoining lavas, forms good horizon markers. The metadiabase is practically identical to the metamorphosed mafic intrusive rocks in appearance, mineralogical composition, alteration and except in rare cases, where pillows have been ecognized, also structure. Both consist essentially of fibrous amphibole, chlorite, and highly altered plagioclase with small amounts of carbonate, epidote, sericite, and quartz and subordinate leucoxene, apatite, sphene, and sometimes pyrrhotite. The felsic lavas are dacitic in composition. On the Pickle row Main and Albany River claim groups and on the Crowshore property there are exposures of rhyolite. Chlorite schist occurs in narrow zones believed to have been he loci of fault adjustments during or after regional folding. Hornblende schist occurs only near granitic intrusions where processes of alteration and recrystallization were more intense. The most extensive and typical exposure of carbonatized lava s found 1,400 feet (420 m) south of Kishkap Falls on the Cohen MacArthur claim group. It consists of intermixed quartz and ferruginous dolomite. Rhyolitic agglomerate outcrops on the Patricia claims along and south of Dona creek; elsewhere in the area the agglomerate is more mafic. Rhyolitic agglomerate consists of elongated contorted fragments of felsic lava in a pale grey to pink siliceous uff, whereas the mafic agglomerate fragments are elongated, rounded, angular in shape and consist of one or more of basalt, dacite, rhyolite, and chert. The matrix is highly chloritic, massive to schistose. A typical sample of tuff consists of layers of chlorite schist with scattered magnetite grains alternating with laminae made up of quartz, siderite, and magnetite. The more abundant mafic tuff has a much higher chlorite content, carbonates are not abundant and albite, epidote, sericite, and leucoxene are Flow breccia consists of ovate to irregular-shaped fragments fine-grained "greenstone" enclosed in a matrix of similar tex-Pa. 2019 ture and mineralogical composition. Small bands of fine-grained metasediments are interbedded with lava flows at a few places in the map-area. The iron formation is a strikingly banded, rusty weathering rock that consists of thin layers, in which iron carbonate, fine-grained quartz, and magnetite are present in varied proportions (Hurst 1930). It occurs as streaks, lenses, and narrow bands, from a few inches to over 100 feet (30 m) in thickness. requently some of the bands can be traced continuously for miles sand and long strike; other bodies are lenticular, extending for only a few feet but they are often arranged in linear patterns permitting the delineation of stratigraphic horizons for structural The metamorphosed mafic intrusive rocks are represented by gabbro and porphyritic gabbro. The latter, which does not outcrop, consists of white to cream-coloured phenocrysts, up to 2 nches (5 cm) in length, of highly altered plagioclase embedded Pa. 2674 Pa. 2673 in a dark green, and a relatively fine-grained matrix of feld-Pa. 2490 spar, chlorite, amphibole, sericite, and accessory magnetite. The felsic intrusive rocks may be segregated into 5 groups: ) highly sheared porphyries, including quartz-sericite schist and quartz albite porphyry Pa. 1129 | Pa. 1128 | ) biotite granite (gneiss) and (porphyritic) albite granite; ) faintly sheared to massive porphyry, including albite porphyry and quartz diorite porphyry felsic dikes termed aplite, rhyolite or felsite; and 5) mafic dikes, including metadiabase and biotite lamprophyre. The typical quartz-albite porphyry is a sheared, finerained, greyish to greyish pink rock with phenocrysts of quartz and feldspar. Some are more highly sheared than others and the relatively more massive ones appear to be less contorted which suggests that their intrusion commenced during the early stages Pa. 3141 Pa. 4462/ f the regional deformation and continued until or nearly until ne major folds had developed into their final forms. This is of considerable significance, for while the folded porphyries have provided important structural controls for mineral deposition, the more massive varieties, such as the one found at the Pickle Crow No. 3 shaft, are much more favourable host rocks Pa. 1226 than are those which are highly schistose. Pa. 3843 Pa. 2213 Pa.5451 Pa.5449 Quartz-sericite schist differs from quartz-albite porphyry only in its more highly schistose character and in the absense of feldspar phenocrysts which have been reduced to aggregates of secondary minerals. Diamond drilling, southeast of No. 1 shaft of Central Patricia Gold Mines Limited, has shown that Pa. 2680 locally one rock type passes into the other along its strike. Crosscutting relationships, in places, indicate that much of e quartz sericite schist at the Central Patricia mine is igneous in origin, emplaced by intrusive action. Intrusions of biotite granite flank the Crow River area on the northwest and southwest, but no exposures of this rock have been found within the boundaries of the map-sheet. In drill cor section the granite is greyish pink, and generally massive. Some specimens show a faint gneissic structure. It consists of microcline, oligoclase, and quartz, with minor amounts of brown biotite and accessory magnetite and apatite. The feldspars, particularly the plagioclase, are replaced by sericite epidote and a little carbonate. Magnetometer surveys on the North Muskeg Group indicated linear magnetic anomalies. Between June 1949 and March 1950, The Atwater-Porcupine Prospecting Syndicate acquired 17 Forty-four diamond drill holes totalling 17,000 feet (5200 m) The Picpat Syndicate carried out a dip needle and a potentio-Biotite lamprophyre is massive, dark grey to black, medium-The albite granite (porphyritic) resembles the quartzbody of quartz albite porphyry. It thus appears to have been Several directions of shearing are evident in the area. ECONOMIC GEOLOGY: As of 1951, gold was the only metal that meter survey on their property. In 1949, a short diamond drill were put down on the property of Gateway Patricia Gold Mines albite porphyry in structure and metamorphism. The former grained, with a distinct porphyritic texture due to crystals of deflected from its normal course by cross-folding about the proved to be of economic importance. The silver that was reclaims formerly held by the Crow River Development Company and Most important is the regional schistosity developed in some of subsequently optioned the claims to Central Patricia Gold Mines 21 diamond drill holes totalling 11,935 feet (3640.2 m) were Limited to test geophysical anomalies. Although the core conhole tested a magnetic high. A little arsenopyrite was noted Hooker-Burkoski Stock. In the western part of the area there covered as a by-product of the gold ores was low in overall represents a coarse-grained facies. piotite that in places exceed a quarter of an inch (0.6 cm) in the lava flows, fragmentals, and porphyries. The schistosity tained gold, assay returns indicated only low or erratic values. in a few places in the core and assays of the core indicated may be another synclinal fold of general northeasterly pitch, Limited. Four diamond drill holes totalling 1,872 feet (570.9 m) length. Most diles of biotite lamprophyre are too small to be production. Since tungsten was in demand in the early years o bored without success. losely parallels the assumed traces of the axial planes of the The albite porphyry is grey or brownish grey with distinct, low gold content (0.06 ounce per ton). One section at a depth of 1,925 feet (587.1 m) was found to assay 6.27 ounce per ton Work on the property was discontinued in 1939. were put down to investigate a 15-foot (4.5 m) section of iron possibly representing the extension of the Pickle Crow Syncline. shown on the map. It appears that these dikes were formed at Central Patricia Anticline and the Pickle Crow Syncline. Super-World War II, a small amount of scheelite was obtained from the In 1936 and 1937, 17 diamond drill holes totalling about well-formed phenocrysts of white plagioclase and occasionally imposed on the regional schistosity is a later variety that quartz veins of the Pickle Crow mines. None of the deposits in formation. No further work was reported. about the same general time as the mineral deposits (Pye in Surface diamond drilling and geophysical exploration pro-6,300 feet (1900 m), were put down on the Roeanor West Group The anticlinal axis (Central Patricia Anticline) south of quartz phenocrysts. The albite porphyry is very similar to the gold over 2.5 feet (0.76 m). No further work on the property the area were found to contain sufficient scheelite to permit a strikes parallel to the axis of the Hooker-Burkoski Stock and In 1951. Central Patricia Gold Mines Limited held six claim grams did not give encouraging results on the property of Ka-Crow sheared porphyries differing only in its characteristic massive the Central Patricia No. 1 shaft has an overturned axial plane, for Roeanor Gold Mines Limited. In 1941, Central Patricia profitable mining operation. The many bands of iron formation the cross fold associated with it. Gold Mines Limited put down another 2 diamond drill holes for a quality and in lack of abundant quartz phenocrysts. north at about 75 degrees, and strikes N70E. However, to the groups, which included 143 patented and 40 unpatented claims. Patricia Gold Mines Limited. From the start of operations until Dikes of quartz diabase, strongly resembling the Keweenawan id not appear to contain iron-bearing minerals in concentrations west it swings to assume first an east-west strike and then hese groups are known as: the Main Group, the Springer Group, total of 1,100 feet (335 m). Two more diamond drill holes were drilling was suspended in the winter of 1937, a total of 47 The Waltricia Gold Mines Limited claims formerly held by diabase found in other parts of northwestern Ontario, and here The principal faults may be classified as either longi-Quartz diorite porphyry is younger than the sheared quartz of sufficient size and grade to make ore. he Connell South Group, the North Muskeg Group, and the Roeanor put down in 1944, totalling 909 feet (300 m). Trenching and diamond drill holes aggregating 21,635 feet (6598.7 m) in length Walker Patricia Gold Mines Limited underwent geological, geowhere it appears to extend across the Gateway Patricia claims tentatively correlated with it, strike in a northwest-southeast tudinal or transverse; the former are more significant. Generally albite porphyry. The former is grey to dark grey in over-all physical, trenching and diamond drilling exploration. Nothing it assumes a west-northwest strike (Thomson 1938). It seems direction. The quartz diabase is a well-jointed but otherwise The gold deposits were classified by Thompson (1938, p.25) West Group. drilling on the Roeanor West Group proved unsuccessful. were drilled. they strike parallel to the formations, with a west-northwest colour, with phenocrysts of white feldspar and quartz. Its probable that the axial plane of the Central Patricia Anticline according to structure, shape, size and continuity as of commercial importance was located and work was suspended. massive, brownish weathering, dark grey to black rock with small, strike in the vicinity of the Central Patricia Mine or an east-From the start of mining on the Main Group, in 1937 to the In 1937 and 1938, surface and diamond drilling exploratory Pickle Crow Mines Limited started gold production in April most distinguishing feature is the presence of large crystals curves around the nose of the Hooker-Burkoski Stock. interlocking, lath-like feldspar crystals. northeast strike near the Pickle Crow Mine. The transverse In 1946, L.H. Mitchell and E. Wilson staked 17 claims cessation of milling in 1951, 608,650.140 ounces of gold and 1935, when a mill with a rated capacity of 125 tons per day was and grains of lustrous, black biotite. fissure of composite quartz veins programs on the property of Crowshore Patricia Gold Mines Limited faults strike across the formations, generally in a northwest TRUCTURAL GEOLOGY: Formations in the area were first iso-58,229.94 ounces of silver (Pye in press) were produced. brought into operation. The ore was being mined from two quartz In the eastern part of the area another anticlinal fold esulted in encouraging gold values. Further channel sampling (Wilson Group) north of the property of Waltricia Gold Mines stockworks in iron formation Aplite, rhyolite and felsite dikes are believed to be postvein systems, known as the Howell and the No. 2, from which, Limited. In 1947, 1,300 feet (400 m) of diamond drilling, on inally folded into anticlines and synclines of general northhas been outlined by Thomson (1938, p.20). He interprets this silicified sheared zones and diamond drilling led to the sinking of a three-compartment Stripping of the No. 6 vein on the Springer Group indicated shaft in 1945. A total of 1,710 feet (521 m) of crosscutting granite in age, for although no intrusive relationships have structure as a minor drag fold on the flank of the Pickle Crow up until December 31, 1951, the company reported a total rea gold-bearing quartz vein, did not outline commercial ore. I easterly plunge, then cross folded along north to northwest axes, The major longitudinal faults are the Central Patricia, replacement bodies a possible ore shoot. In 1935, shaft sinking started. On the 1948, Central Patricia Gold Mines Limited accepted an option een found in the map-area itself, the work of Hurst (1930) and covery of 860,748,312 ounces gold and 105,635.86 ounces of Syncline. The trace of the axial plane of this anticlinal fold and 5,387 feet (1643 m) of underground drilling was done but no Crow River, and Pickle Crow Faults. Big Muskeg Fault is really and finally displaced by both strike and transverse faults. 50-foot (45 m) level four ore shoots with an aggregate length The author (in press, p.75,76) has assigned these general two distinct structures, the Dona Creek and Cohen-MacArthur agreement and put down 5 diamond drill holes totalling 316 feet Evans (1939) has shown that pegmatite and aplite dikes of similar commercial ore was outlined and in June 1947 all underground silver. The everage grade of the ore mined was 0.465 ounce of ies about 1,000 feet (300 m) northwest of that of the Pickle Thomson followed three horizons of iron formation bands types of deposits to one or more of three major classes and of 198 feet (60 m) averaged 2.35 ounces of gold per ton across a operations were suspended. Little additional work on the pro-96.5 m). This drilling proved unsuccessful in locating anything character cut the biotite granite. Thomson (1938) describes an Crow Syncline in this area. In the vicinity of the Central gold and 0.057 ounce of silver per ton. Faults, which have no direct relationship. mean width of 14 inches (35 cm) Anderson (1935). Drifting on bout the nose of the Pickle Crow Syncline, determining a pitch their several subdivisions. aplite dike crosscutting a gold-bearing quartz vein on the Dona of economic significance. No further work has been reported Patricia Mine the same relationship is found between the axial perty was reported (to December 31, 1951). to the northeast of between 45 and 70 degrees (Thomson 1938, the 275- and 400-foot (83 m and 120 m) levels resulted in In the Crow River area the company held four properties (t All the known transverse faults strike northwest, roughly (to December 31, 1951). Particia property so the massive felsic dikes are post-ore in Attawapiscat Mining Syndicate Limited was incorporated in planes of the Central Patricia Anticline and the inferred synassays of 0.97 ounce gold per ton calculated on a 36-inch (91 cm) In 1936, surface trenching resulted in the discovery of a Dec. 31, 1951) which included 97 patented claims. These pro-.20). The axial plane has been overturned (Pye in press, p.55). parallel to the axis of the Hooker-Burkoski Stock and dip to 1945 to take over 2 unpatented claim groups (West and East), line to the south. It seems probable that the anticlinal and perties, are referred to as the Main Group, including the No. Widespread deposits of sand and gravel, in the map-area, mining width (Barrett 1937). Development work at the 550gold-bearing quartz vein on the property of Dona Patricia Gold the northeast at angles ranging from 60 to 75 degrees. West of On the Pickle Crow Main group the trace of the axial plane synclinal folds of the east and west parts of the map-area are located north of Dona Lake near the southwestern corner of the Hooker-Burkoski Stock the displacement along each known 1 and No. 2 mine operations, the Albany River Group, the Cohen-Small metadiabase dikes are common in the underground 167 m), 700- (210 m), and 850-foot (260 m) levels gave unsatis-Mines Limited. Results from a few short diamond drill holes were were of considerable value for road and air-field construction of the syncline strikes about N50E and extends northeast beyond Connell Township. The only mineralization discovered was located workings at the Pickle Crow No. 1 shaft, where they appear to factory results. In 1940 the mine was closed. MacArthur Group, and the Winoga Group. The history and developand provided a source of back-fill for mines. not encouraging and work was discontinued.

by D. Wright in 1945 along the western bank of Fault Creek on claim Pa.6893. The vein (about 5 feet [1.5 m] wide) consists

indicated only traces of gold although one specimen of quartz,

taken by D. Wright assayed 0.41 ounce gold per ton (Lytle 1945).

of glassy white quartz with a little pyrite. Systematic sampling

On the Connell South Group, 14 exploratory, diamond drill

1945, 4 more diamond drill holes, totalling 415 feet (126 m)

holes were put down in 1938, for a total of 2,561 feet (781.1 m).

also gave unsatisfactory results.

ment, general and structural geology, and mineral deposits of

each are described in the author's report on the Crow River

area (Pye in press).

transverse fault is right hand whereas east of the stock it is

cross folding but before the ore deposition.

left hand. Both types of transverse fault were formed after the

he limits of the map-area with no great deviation in attitude.

However, to the southwest across claim Pa. 672, it strikes east-

strike, where it apparently passes through a large saddle-like

northeast and then gradually swings about to an east-west

be both pre-quartz and post-quartz in age.

Pa.2125 ... 9 Aplite METAVOLCANICS AND METASEDIMENTS Extrusive Rocks GEOLOGICAL AND MINING SYMBOLS Anticline, syncline Quartz vein Shaft 7. Kaw-Crow Patricia Gold Mines Limited 9. Picpat Syndicate 11. Wilson, E. Advice to Prospectors: The search for gold ore, within the maparea, should be based on a careful consideration of the following 1939: Geology of the Eastern Extension of Crow River Area; Ontario Dept. Mines, Vol. 58, pt.7, (published conclusions from the survey:-1941), 9p. Accompanied by Map No. 48f, scale 1 1) All the known ore bodies, with the exception of those inch to 2 miles. at the Central Patricia No. 1 Operation, occur along the southern flank of the Pickle Crow Syncline and close to but not within 1930: Pickle Lake-Crow River Area, District of Kenora Area by James E. Thomson. the Pickle Crow fault zone. (Patricia Portion); Ontario Dept. Mines, 2) The larger ore bodies occur in east-west fissures or Vol.39, pt.2 (published 1931), p.1-35. Accomrelated tension fractures, but others of smaller tonnage occur panied by Map No.39a. along northeast-trending shear and fracture zones. 3) The most favourable host rocks for ore deposition are 1945: Option on D. Wright's Claims Adjoining East and Issued 1975 iron formation and folded quartz albite porphyry. West of Connell South Group; Central Patricia Gold Mines Limited, Unpubl. company report, McInnes, William 1912: A Part of the North West Territories of Canada Anderson, Allan J. Drained by The Winisk and Attawapiskat Rivers; 1935: Mine Manager's Report, 3rd Annual Report of Central Ontario Bur. Mines Vol.21, pt.2, p.108-137. Patricia Gold Mines Limited for Period Ended In Press: Geology and Mineral Deposits of the Crow River Area; Ontario Div. Mines Open File Report, 240p. 1937: Report of the Mine Manager, 5th Annual Report of Central Patricia Gold Mines Limited for the

1938: The Crow River Area; Ontario Dept. Mines, Vol.47

Map No.47b, scale 1 inch to 1,000 feet.

pt.3 (published 1939), p.1-65. Accompanied by

Year Ended Dec. 31, 1937.

**HONOURABLE LEO BERNIER, Minister of Natural Resources** Dr. J. K. REYNOLDS, Deputy Minister of Natural Resources G. A. Jewett, Executive Director, Division of Mines E. G. Pye, Director, Geological Branch

PRELIMINARY MAP P. 1009 GEOLOGICAL SERIES CROW RIVER AREA

DISTRICT OF KENORA (PATRICIA PORTION)
Scale: 1 inch to 1,000 ft. or 1:12,00 NTS Reference: 52 0/8E, 9E; 52 P/5W, 12W ODM-GSC Aeromagnetic Map: 923G, 924G, 933G, 934G

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GREAT UNCONFORMITY

MAFIC INTRUSIVE ROCKS (KEWEENAWAN) 11 Quartz diabase

EARLY PRECAMBRIAN (ARCHEAN) MAFIC INTRUSIVE ROCKS 10a Biotite lamprophyre

8b Massive albite porphyry

a Biotite granite b Albite granite (porphyritic) a Quartz-albite porphyry (sheared) b Quartz-sericite schist

4 Iron formation Quartzite, greywacke, graphitic schist and some interbedded lava

Agglomerate, tuff, flow breccia

Fine-grained intermediate and mafic Metadiabase Chlorite and hornblende schist le Carbonatized lava

Bedding, top unknown; (inclined, vertical) Lava flow; top (arrow) from pillows shape and packing Lava flow; top in direction of arrow Schistosity; (inclined, vertical)

--- Geological boundary, defined Geological boundary, position interpreted from geophysical survey or diamond drilling Fault; (observed, assumed)

Drill hole; (inclined)

LIST OF PROPERTIES (as of December 31, 1951):

1. Attawapiscat Mining Syndicate 2. Atwater-Porcupine Prospecting Syndicate 3. Central Patricia Gold Mines, Limited

4. Crowshore Patricia Gold Mines Limited 5. Dona Patricia Gold Mines Limited 6. Gateway Patricia Gold Mines Limited

8. Pickle Crow Mines Limited

10. Waltricia Gold Mines Limited

\*Location of properties approximate

SOURCES OF INFORMATION . Geology and compilation by E.G. Pye and assistant, 1951. Base map derived from Ontario Dept. Mines Map 47b, Crow River Reports from various mining companies. Officials and staff of the mining companies offered invaluable information and advice. Magnetic declination approx. 1°E, 1951.

Information from this publication may be quoted if credit is given to the Ontario Division of Mines. It is recommended that reference to this map be made in the following form:

Crow River Area, District of Kenora (Patricia Portion); Ontario Div. Mines Prelim. Map P.1005 Geol. Ser., scale 1 inch to 1,000 feet or 1:12,000

Geology and compilation 1951.