

REPORTED.

DOES NOT APPEAR TO BE EXTENSIVELY MINERALIZED. 1966, SINCLAIR 1966 AND NUMEROUS STUDIES OF INDIVIDUAL

MOST OCCURENCES.

THE NUMEROUS CARBONATE AND CALCAREOUS MEMBERS OF THE EAGLE BAY FORMATION ARE POTENTIAL HOSTS FOR STRATA-BOUND LEAD-ZINC-SILVER DEPOSITS OR POSSIBLY LOCAL SOURCES FOR VEIN AND SHEAR ZONE OCCURENCES. THE LARGER MEMBERS ARE SHOWN ON MAP C. MAP A ILLUSTRATES THE DISCONTINOUS NATURE OF THESE HORIZONS WHICH IS CAUSED BY FACIES CHANGES, POLYPHASE DEFORMATION AND POOR EXPOSURE. FEW DEPOSITS ARE KNOWN IN THE SILVER CREEK FORMATION EXCEPT SOUTHWEST OF SICAMOUS (172, 173, 175). THE SILICEOUS SOUTHWESTERN FACIES IN THE MAIN BELT OF EXPOS-URES OF THE FORMATION SOUTHWEST AND SOUTH OF SHUSWAP LAKE MINERAL OCCURENCES OUTSIDE THE PROJECT-AREA LIKELY RELATED TO THOSE OF THE EAGLE BAY AND SILVER CREEK FORMATION ARE PRIMARILY FOUND IN THE KOOTENAY ARC (READ 1977) WHERE THEY HAVE BEEN STUDIED IN GREAT DETAIL (FYLES AND EASTWOOD 1962; Fyles, 1964, 1967; Fyles and Hewlett 1959; Muraro

DESPITE SUCH EFFORTS CONTROVERSY CONTINUES ABOUT THEIR ORIGIN, MOST LIKELY BECAUSE OF THE POLYGENETIC NATURE OF

WITHIN ROCKS OF THE LARDEAU ASSEMBLAGE (MIDDLE CAMBRIAN TO MID-ORDOVICIAN) LEAD-ZINC-SILVER DEPOSITS ARE CONCORDANT, VEIN AND SHEAR ZONE TYPES OF EITHER SYNGENETIC OR EPIGENETIC ORIGIN, OR BOTH. SANGSTER (1970) AND LECOUTEUR (1973) SUGGESTED DERIVATION LEAD FROM THE CRATON BY SEDIMENTOLOGICAL MEANS. SOME COULD BE DERIVED FROM COEVAL VOLCANISM. FYLES (1970, P 44) SUGGESTED THAT CON-CORDANT DEPOSITS IN A LOWER CAMBRIAN TO ORDOVICIAN ROCKS ARE EPIGENETIC AND FORMED BETWEEN PHASE 1 AND PHASE 2 FOLDING. IF PHASE 1 FOLDING IS MID-ORDOVICIAN IN AGE (OROGENY, MAP B) THEN THE DEPOSITS MAY BE RELATED TO DEVONIAN PLUTONISM. LEAD ISOTOPE DATA CANNOT READILY DIFFERENTIATE AMONG THE VARIOUS POSSIBILITIES. REINTER-PRETATION OF DATA PRESENTED BY LECOUTEUR (1973) ALLOWS THE FURTHER POSSIBILITY OF DERIVATION OF LEAD FROM SULLIVAN-TYPE DEPOSITS OF THE PURCELL SUPERGROUP (LECOUTEUR, 1979; CAMPBELL, ET AL., 1978) BY EROSION AND ITS DEPOSITION IN CAMBRO-ORDOVICIAN TIMES. VEIN AND SHEAR ZONE OCCURENCES PREDOMINATE IN THE LARDEAU TROLLED BY PALAEOZOIC STRUCTURES (E.G. F1 FAULTING; READ,

GROUP (READ, 1977B). ALTHOUGH SOME MAY HAVE BEEN CON-1973) MOST ARE RELATED TO MESOZOIC OR TERTIARY FEATURES. THE LEAD MAY HAVE BEEN DERIVED BY LEACHING OF PROTEROZOIC CRATONIC ROCKS (SANGSTER, PERSONAL COMMUNICATION, 1979), FROM CONNATE BRINES IN YOUNG COUNTRY ROCKS (SLOCAN GROUP; LECOUTEUR, 1973) OR FROM HYDROTHERMAL SOLUTIONS ASSOCIATED WITH MESOZOIC OR EOCENE PLUTONISM (FYLES, 1967; REYNOLDS AND SINCLAR 1971; BRAME ET AL. 1979). THESE TRANSGRESSIVE DEPOSITS ARE NOT ALL OF ONE SIMPLE TYPE AND NOT UNEQUIVO-CALLY RELATED TO ANY OF THE MAGMATISM IN THE REGION. REMOBILIZATION OF SYNGENETIC LEAD AND INTRODUCTION OF RADIOGENIC LEAD BY DEVONIAN, JURASSIC AND/OR EOCENE IGNEOUS ACTIVITY INTO SITES CONTROLLED BY ORDOVICIAN (?) JURASSIC AND EOCENE STRUCTURES ARE ALL POSSIBLE MODES OF MINERALIZATION.

PROBABLE EXTENSIONS OF THE EAGLE BAY FORMATION OCCUR NORTH OF THE RAFT BATHOLITH (EKqm, MAP B) IN THE NORTHEAST CORNER OF THE BONAPARTE LAKE MAP AREA (UNIT 1, CAMPBELL AND TIPPER, 1971), IN PARTS OF THE NORTHWEST QUARTER OF THE ADAMS LAKE MAP-AREA NEAR THE RAFT RIVER (UNIT 4A?, CAMPBELL, 1963A) AND NEAR CLEARWATER LAKE, QUESNEL LAKE MAP-AREA (UNIT 7B AND (?) 7A; CAMPBELL, 1963B; UNIT HIPSM WITHIN THE GARNET SNOWSHOE FORMATION (UNIT 6; CAMPBELL, 1961; UNIT HKS, CAMPBELL ET AL. 1973; UNIT HI IP SM CAMPBELL 1978) MAY BE CORRELATIVE TO THE EAGLE BAY FORMATION. IF SUCH A CORRE-LATION IS CORRECT, THEN, LIKE THE SILVER CREEK FORMATION, THIS SILICEOUS WESTERN FACIES OF THE LARDEAU ASSEMBLAGE DOES NOT APPEAR TO BE HIGHLY MINERALIZED. AN OCCURENCE BEARING LEAD AND ZINC WAS REPORTED IN RITCHIE CREEK, A TRIBUTARY OF THE RAFT RIVER (T. HEWTON, PERSONAL COMMUNI

CATION, 1974). NUMEROUS SILVER, LEAD, ZINC, COPPER, MANGANESE AND COBALT GEOCHEMICAL ANOMALIES OCCUR THROUGHOUT THE AREA UNDERLAIN BY THE EAGLE BAY FORMATION. THEIR PRESUMED SOURCES ARE LIMESTONE STRATTA AND QUARTZ VEINS (EDEB, COEBC; MAP B) BEARING LEAD-Z:INC-SILVER MINERALIZATION AND SOME COPPER-BEARING VOLCANOGENIC UNITS (COEBV, MAP B). COBALT IS FOUND IN MOST ANOMALIES AND MAY SERVE AS A PATH-FINDER ELEMENT FOR LEAD-ZINC-SILVER DEPOSITS. URANIUM AND FLUORINE ANOMALIES ARE FOUND NEAR THE REXSPAR DEPOSIT (035).

PALAEOZOIC PLUTONIC ROCKS THE ONLY OCCURENCE (171) WITHIN THE ORDOVICIAN LITTLE SHUSWAP GNEISS (LOgn) IS A MUCH YOUNGER FRACTURE FILLING OF FLUORITE NOT LIKELY TO BE ASSOCIATED WITH THE PLUTON. A FEW OCCURENCES OF COPPER (079 TO 082) ARE FOUND IN OR NEAR THE WEST END OF THE DEVONIAN MOUNT FOWLER BATHOLITH (LDgn) WEST OF ADAMS LAKE BUT NO GENETIC RELATIONSHIP WITH IT IS KNOWN. THE POSSIBLE INFLUENCE OF DEVONIAN PLUTONISM ON GENESIS OF TRANSGRESSIVE LEAD-ZINC-SILVER DEPOSITS IN THE EAGLE BAY FORMATION AND THE KOOTENAY ARC HAS BEEN MENTIONED ABOVE.

IS FOUND WITHIN NEPHELINE-SYENITE AND SYENITE GNEISS (Fyles, 1970, PP 58-61) THAT MAY BE OF PALAEOZOIC AGE. No GEOCHEMICAL ANOMALIES DIRECTLY RELATABLE TO PALAEOZOIC IGNEOUS ROCKS ARE PRESENT IN THE PROJECT-AREA. ULTRAMAFIC ROCKS (OLD DAVE INTRUSIONS, Rub) IN THE CHAPPERON GROUP (PC) MAY SUPPLY NICKEL FOR A GEOCHEMICAL ANOMALIES IN WHITEMAN

EAST OF THE MAP-AREA IN FRENCHMAN'S . CAP DOME, MOLYBDENUM

THOMPSON ASSEMBLAGE THE CHAPPERON GROUP (IPC) IS INTRUDED BY NUMEROUS ULTRA-MAFIC DYKES AND SILLS AT LEAST ONE OF WHICH CONTAINS A DEPOSIT OF CHRCMIUM (337). ANOTHER CONTAINS ASBESTOS (290). THE ONLY KNOWN CORRELATIVE OF THE CHAPPERON GROUP, THE KOBAU GROUP (OKULITCH, 1973) CONTAINS ONE SMALL POD OF HIGHLY ALTERED ULTRAMAFIC ROCK BUT NO SIGNIFICANT MINERAL OCCURENCES. STRATA CORRELATED WITH THE MILFORD GROUP (CM) LIE WEST OF

ADAMS LAKE AND CONTAIN ONLY A FEW SMALL COPPER-LEAD OCCUR-ENCES. IN THE KOOTENAY ARC THE MILFORD GROUP IS HOST TO NUMEROUS LEAD-ZINC-SILVER VEIN AND SHEAR ZONE DEPOSITS IN THE AINSWORTH CAMP (FYLES, 1967). THESE ARE PERHAPS RELATED TO LOCAL IGNEOUS ACTIVITY WHICH IS NOT EVIDENT IN THE AREA WEST OF ADAMS LAKE. NO GEOCHEMICAL ANOMALIES ARE PRESENT WHOSE SOURCE MIGHT BE MINERALIZATION WITHIN THE MILFORD GROUP.

THE THOMPSON ASSEMBLAGE (SENSU STRICTO; CPTA) CONTAINS NUMEROUS OCCURENCES AND SMALL DEPOSITS BEARING GOLD-SILVER LEAD AND COPPER IN VEINS AND SHEAR ZONES. MOST ARE FOUND NEAR VERNON AND IN THE SOUTHEAST CORNER OF THE MAP-AREA. ALL ARE PRESUMED TO BE RELATED TO JURASSIC PLUTONS (Jg) BUT THE METALS MAY HAVE ORIGINATED WITHIN SEDIMENTS AND VOLCANIC ROCKS OF THE ASSEMBLAGE, OR OF THE SLOCAN GROUP. SIGNIFICANT SKARN DEPOSITS OF IRON AND COPPER ARE NEAR HEFFLEY LAKE IN THE NORTH-CENTRAL PART OF THE MAP-AREA. No other occurences of this type are known elsewhere in THE PROJECT-AREA AND THEY MAY BE UNIQUE DEPOSITS FORMED BY THE JUXTAPOSITION OF CARBONATE STRATA AND SPECIFIC,

LOCAL INTRUSIWE ROCKS. LIMESTONE FOR CEMENT AND BUILDING STONE HAS BEEN EXTRACTED AT TWO LOCALITIES (177, 231). THE THOMPSON ASSEMBLAGE WEST OF THE MAP-AREA HAS A NUMBER OF GOLD VEIN OCCURENCES (COCKFIELD, 1948). THE ANARCHIST GROUP AT THE LIGHTENING PEAK CAMP CONTAINS NUMEROUS SILVER-LEAD-ZINC VEIN AND SHEAR ZONE DEPOSITS (388 TO 406) AND OTHER OUTCROPS OF THE GROUP IN THE KETTLE RIVER MAP-AREA ARE ALSO MINERALIZED (LITTLE 1957, 1961; PEATFIELD 1978). SILVER AND ZINC ANOMALIES NEAR LIGHTENING PEAK (SOUTHEAST

CORNER OF THE PROJECT-AREA) APPEAR TO BE CAUSED BY EROSION OF NUMEROUS LEAD-ZINC-SILVER VEIN AND SHEAR ZONE OCCURENCES WITHIN THE THOMPSON ASSEMBLAGE. SLIDE MOUNTAIN ASSEMBLAGE BASIC VOLCANIC ROCKS OF THE FENNELL FORMATION HAVE SCATTERED OCCURENCES OF VEINS WITH GOLD, COPPER AND LEAD

(001, 004, 005, 007, 023, 024, 041 to 043, 068). THESE MAY HAVE FORMED BY REMOBILIZATION OF METALS DERIVED FROM THE VOLCANIC ROCKS. NEAR THE WEST END OF THE BALDY BATHOLITH ARE SMALL VEINS BEARING COPPER AND MOLYBDENUM MOST LIKELY RELATED TO THE BATHOLITH. TWO OCCURENCES ARE KNOWN IN EXTENSIONS OF THE FENNELL FORMATION IN THE SLIDE MOUNTAIN GROUP TO THE NORTH (4,42; CAMPBELL AND TIPPER, 1971, PP. 83, 93). None are reported farther north (CAMPBELL ET AL., 1973). NO DATA ARE AVAILABLE FOR POSSIBLE ANOMALIES WITHIN THE AREA

UNDERLAIN BY THE FENNELL FORMATION (PF, MAP B). THE TSALKOM FORMATION CONTAINS A FEW SMALL COPPER-LEAD, NICKEL AND GOLD-SILVER OCCURENCES SOUTH OF MARA LAKE, WEST OF ARMSTRONG, ALTERED ULTRAMAFIC LENSES (F ub, MAP B) CONTAIN TALC (242). NICKEL-COPPER-COBALT GEOCHEMICAL ANOMALIES IN THE MOUNT CAHILTY AREA NORTHWEST OF LITTLE SHUSWAP LAKE MAY BE DERIVED FROM BASIC AND ULTRAMAFIC VOLCANIC ROCKS OF THE TSALKOM FORMATION (PT, PTub, MAP B).

WEST OF THE SOUTH END OF ADAMS LAKE, ROCKS CORRELATED WITH THE KASLO GROUP (PKVb, MAP B) HAVE MINOR COPPER OCCURENCES (083, 127). COPPER AND ASBESTOS OCCURENCES NEAR ADAMS LAKE (105, 106) MAY ALSO LIE WITHIN THE KASLO

LEAD-ZINC-SILVER VEIN DEPOSITS OCCUR IN THE KASLO GROUP

IN THE KOOTENAY ARC (FYLES, 1967) IN PART LOCALIZED NEAR CONTACTS BETWEEN VOLCANIC AND CARBONATE STRATA BUT LIKELY RELATED TO NEARBY PLUTONISM. SIMILAR OCCURENCES DO NOT APPEAR TO BE PRESENT TO THE WEST IN THE TSALKOM AND FENNELL FORMATIONS. SHUSWAP ASSEMBLAGE (SOUTHERN PART)

THE OKANAGAN PLUTONIC AND METAMORPHIC COMPLEX CONTAINS VERY FEW OCCURENCES. A CONCORDANT GOLD OCCURENCE (303) IN MARBLE (PSC, MAP B) IS EXPOSED AT COSENS BAY, KALAMALKA LAKE, COPPER-GOLD AND COPPER-MOLYBDENUM VEINS (344, 366) TRANSECT UNIT PMIn BUT ARE LIKELY ASSOCIATED WITH NEARBY JURASSIC GRANITIC ROCKS (Jg). NO MINERAL OCCURENCES ARE REPORTED FROM THE COMPLEX SOUTH OR SOUTH-EAST OF THE MAP-AREA (LITTLE, 1957, 1960, 1961; PRETO,

SLOCAN ASSEMBLAGE

THE SICAMOUS FORMATION (uTR NS) CARRIES A VARIETY OF SMALL OCCURENCES, PRIMARILY OF LEAD-SILVER WITH SOME COPPER, GOLD OR ZINC IN TRANSGRESSIVE VEINS. MOST OCCURENCES ARE NORTH OF VERNON AND EASTWARD TO THE EAST EDGE OF THE MAP-AREA; A FEW (184, 185, 212, 214) ARE FOUND IN THE SALMON ARM REGION WHERE THEY APPEAR TO BE ASSOCIATED WITH CRETA-CEOUS GRANITIC ROCKS (Kg). THE POORLY EXPOSED REGION WEST OF THE SOUTH END OF ADAMS LAKE HAS ONE SMALL OCCURENCE (126) OF LEAD-COPPER IN VEINS ASSOCIATED WITH UNIT Kg. PELITIC PARTS OF THE NICOLA GROUP (uTRNS; uTRNs, MAP B) ALONG THE WEST-CENTRAL PART OF THE MAP-AREA ALSO CONTAIN A FEW SMALL GOLD-SILVER VEINS (202, 203, 223) LIKELY RELATED TO UNIT Jg. A CONCORDANT GOLD-SILVER OCCURENCE LIES IN A VOLCANIC STRATUM WITHIN UNIT WIR NS NEAR THE SALMON RIVER. THE POORLY EXPOSED REGION NORTHWEST TO SOUTHWEST OF CHAPPERON LAKE MAY CONTAIN OTHER SIMILAR .OCCURENCES.

THE SINGLE PRODUCING DEPOSIT IN UNIT uk NS IS OF STRATI-FORM GYPSUM (226) NEAR FALKLAND. ORIGINALLY BELIEVED TO BE OF HYDROTHERMAL ORIGIN RELATED TO TERTIARY VOLCANISM (JONES, 1959) IT WAS LATER CONSIDERED TO BE OF SEDIMENT-ARY-MARINE DERIVATION AND EMPLACED OR AFFECTED BY MESOZOIC FAULTING AND FOLDING (BAIRD, 1964). A SMALL GYPSUM OCCURENCE (086) NEAR LOUIS CREEK IN ROCKS SUPPOS-EDLY OF THE THOMPSON ASSEMBLAGE LIES DIRECTLY ON STRIKE FROM THAT AT FALKLAND AND ITS PRESENCE SUGGESTS THAT ROCKS OF TRIASSIC AGE MAY BE INTERLEAVED WITH THOSE OF THE ASSEMBLAGE. EVAPORITES ARE PRESENT IN TRIASSIC STRATA OF THE ROCKY MOUNTAINS (GIBSON, 1974) AND IN THE NICOLA GROUP SOUTH OF KAMLOOPS AND NEAR MERRITT COCKFIELD, 1948 P. 144).

WEST OF THE MAP-AREA A FEW GOLD OCCURENCES LIE WITHIN SEDI-MENTS NOW INTERPRETED TO BE OF TRIASSIC AGE (17, 28, 48, MAP 887A, COCKFIELD, 1948). IN THE BONAPARTE LAKE MAP-AREA TWO OCCURENCES (8, 12; CAMPBELL AND TIPPER, 1971, PP. 84-85) OF LEAD-ZINC-SILVER IN SHEAR ZONES CUTTING UNIT uTR NS ARE

EAST OF THE PROJECT-AREA LIES THE SIGNIFICANTLY MINERALIZED SLOCAN REGION WHICH CONTAINS NUMEROUS LEAD-ZINC-SILVER VEIN AND SHEAR ZONE DEPOSITS (READ, 1977; LITTLE, 1960). THESE DEPOSITS MAY BE GENETICALLY SIMILAR TO THOSE IN THE PROJECT-AREA. LIKE DEPOSITS OF THIS TYPE DISCUSSED PREVIOUSLY, THEIR AGE AND GENESIS ARE CONTROVERSIAL. ALL ARE BELIEVED YOUNGER THAN THEIR HOST STRATA AND GEOLOGICAL EVIDENCE SUGGESTS SEVERAL PERIODS OF EMPLACEMENT (FYLES, 1967; HEDLEY, 1957; CAIRNES, 1934, 1935) DURING JURASSIC TO EOCENE TIMES. THE SOURCES OF LEAD HAVE BEEN VARIOUSLY SUG-GESTED TO BE THE NELSON BATHOLITH (DEEP CRUSTAL OR MANTLE ORIGIN: BRAME ET AL, 1979), OR SLOCAN GROUP SEDIMENTS (WHICH IN TURN MAY HAVE OBTAINED LEAD FROM ERODED EARLY PROTEROZOIC CRATONIC ROCKS; I.E. HIGH LEVEL CRUSTAL ORIGIN: LECOUTEUR, 1973). GEOLOGICAL RELATIONSHIPS (FYLES, 1967) AND LEAD ISOTOPE STUDIES (LECOUTEUR 1973) SUPPORT THE SECOND HYPOTHESIS. IF PROXIMITY TO JURASSIC PLUTONS IS NOT A PRE-REQUISITE THEN THE BELT OF TRIASSIC SEDIMENTS (uTRNS) EXTEND-ING ACROSS THE PROJECT-AREA FROM SOUTHEAST TO NORTHWEST IS A ZONE OF POTENTIAL SILVER-LEAD MINERALIZATION. THROUGHOUT AREAS UNDERLAIN BY PELITIC SEDIMENTS OF THE NICOLA AND SLOCAN GROUPS (uTRNS) ARE GEOCHEMICAL ANOMALIES OF SILVER, ZINC AND COPPER-WITH-COBALT. THESE ARE BELIEVED

TO BE SUPPLIED BY LEAD-ZINC-SILVER VEIN OCCURENCES THROUGH-

OUT THIS SUCCESSION. AS IN THE EAGLE BAY FORMATION, COBALT

MAY SERVE AS A USEFUL INDICATOR OF LEAD-ZINC-SILVER MINER-

THAT ARE CORRELATED WITH THE NICOLA GROUP.

ALIZATION. VOLCANIC ROCKS OF THE NICOLA GROUP (TR JNV) CONTAIN NUMEROUS SMALL CONCORDANT COPPER OCCURENCES AND A FEW GOLD-COPPER AND GOLD-SILVER VEINS SIMILAR TO THOSE IN THE SICAMOUS FORMATION. MOST OCCURENCES ARE FOUND NEAR VERNON AND IN THE NARROW BELT OF META-VOLCANIC ROCKS NEAR SHUSWAP LAKE

THE SOUTHWEST CORNER OF THE PROJECT-AREA IN THE VICINITY OF THE BRENDA MINE. PROBABLE EXTENSIONS OF THIS BELT OF VOLCANIC ROCKS SOUTHEAST OF THE PROJECT-AREA (ROSSLAND GROUP) ALSO CONTAIN MANY GOLD-SILVER, GOLD-COPPER AND COPPER-SILVER DEPOSITS (LITTLE, 1960, FIGURE 7). OTHERS ARE PRESENT IN SOUTHERNMOST BRITISH COLUM-BIA (PEATFIELD, 1978). WEST OF THE PROJECT-AREA, THE NICOLA GROUP IS HOST TO NUMEROUS GOLD-SILVER AND COPPER OCCURENCES AND DEPOSITS (COCKFIELD, 1948; SUTHERLAND BROWN ET AL., 1971). THE COPPER IS BELIEVED TO HAVE ORIGINATED IN THE VOLCANIC ROCKS AND TO HAVE SUBSEQUIENTLY SUFFERED REDISTRIBUTION DUR-ING JURASSIC PLUTONISM (SCHAN, 1969). GOLD-SILVER LODE DEPOSITS MAY ALSO BE RELATED TO MESOZOIC PLUTONISM. COPPER GEOCHEMICAL ANOMALIES ARE COMMON IN THE LINEAR REGION CONTAINING VOLCANIC ROCKS OF THE NICOLA GROUP NORTHWEST OF VERNON TO THE MOUNT TOD AREA. SEVERAL OTHERS OCCUR WHERE

PROPOSED EXTENSIONS OF THE GROUP CROP OUT EAST OF THE SOUTH

END OF ADAMS LAKE.

SMALL COPPER-MOLYBDENUM SKARN AND STOCKWORK DEPOSITS LIE IN

MESOZOIC PLUTONIC ROCKS THROUGHOUT THE PROJECT-AREA JURASSIC AND CRETACEOUS GRANITIC ROCKS CONTAIN A VARIETY OF MINERAL OCCURENCES. THE POSSIBLE RELATIONSHIPS OF THESE INTRUSIONS TO DEPOSITS IN ADJACENT COUNTRY ROCKS HAVE BEEN DISCUSSED ABOVE. THE ONLY SIGNIFI-CANT PRODUCING DEPOSIT IS THE BRENDA MINE (379), A COPPER-MOLYBDENUM STOCKWORK, SEVERAL SMALL SIMILAR OCCURENCES ARE SATELLITIC TO THE MINE, AND OTHERS ARE SCATTERED THROUGHOUT UNIT Jg TO THE NORTH (083 TO 085, 163, 204; 232, 246) AND EAST (258, 320, 338, 341, 342, 345, 366, 407). IN THE SOUTH-EAST CORNER OF THE PROJECT-AREA ARE SEVERAL LEAD-ZINC-SILVER VEIN AND SHEAR ZONE OCCURENCES IN UNITS Jg AS WELL AS CPTA. MINERALIZATION APPEARS TO BE CONTROLLED BY NORTHERLY-TREND-ING POST-PLUTONIC STRUCTURES. THE JURASSIC (?) LONG RIDGE PLUTON (SEE MAP B) NORTHEAST OF SHUSWAP LAKE IS NOT KNOWN TO BE MINERALIZED BUT HAS NOT BEEN INVESTIGATED IN DETAIL. THE CRETACEOUS RAFT AND BALDY BATHOLITHS, PRIMARILY THE LATTER, CONTAIN SEVERAL SMALL OCCURENCES OF COPPER-MOLY-BDEMUM AND SOME LEAD-SILVER VEINS. IN THE BALDY BATHOLITH

THESE ARE CONCENTRATED NEAR ITS WESTERN (HIGH LEVEL?) PORTION. CRETACEOUS PLUTONS SOUTHWEST OF SHUSWAP LAKE DO NOT APPEAR TO HAVE MANY ASSOCIATED OCCURENCES. SEVERAL GRANITE QUARRIES (240, 295, 296, 298) HAVE BEEN ESTABLISHED IN THESE ROCKS. WEST OF THE PROJECT-AREA, MESOZOIC PLUTONS CONTAIN COPPER-MOLYBDENUM DEPOSITS (COCKFIELD, 1943). TO THE SOUTHEAST NEAR SLOCAN, THE JURASSIC NELSON BATHOLITH CONTAINS LEAD-ZINC-SILVER DEPOSITS IN VEINS, SHEAR ZONES AND ZENOLITHS OF THE SLOCAN GROUP.

MESOZOIC GRANITIC ROCKS ARE PROBABLE SOURCES FOR A VARIETY OF GEOCHEMICAL ANOMALIES. SEVERAL COPPER-MOLYBDENUM-ZINC-SILVER ANOMALIES ARE PRESENT NEAR THE BRENDA MINE (379). THE BALDY BATHOLITH (Kgm, MAP B) HAS NUMEROUS URANIUM ANOM-ALIES ON AND AROUND IT AS WELL AS A FEW MOLYBDENUM ANOMALIES. THE SALMON ARM PLUTON MAY SUPPLY THE URANIUM AND FLUORINE ANOMALIES IN ITS VICINITY, OR THESE MAY BE DERIVED FROM UNIT Brothers Peak and Ootsa Lake Assemblages

THE ONLY KNOWN DEPOSITS IN BASAL SEDIMENTS OF THE KAMLOOPS GROUP ARE LOW GRADE COAL LAYERS OF LIMITED LATERAL EXTENT (215, 216, 322), AND DIATOMITE (384). AGATE HAS BEEN OB-TAINED FROM VEINS IN LAVA FLOWS SOUTHWEST OF MONTE CREEK

MOST URANIUM AND FLUORINE GEOCHEMICAL ANOMALIES ARE BELIEVED TO RESULT FROM EROSION OF SEDIMENTS AND VOLCANIC ROCKS OF THE KAMLOOPS GROUP (eTK) OR THE OVERLYING PLATEAU LAVAS (mTv) AND THEIR BASAL SEDIMENTS. GEOCHEMICAL STUDY OF KNOWN URANIUM OCCURENCES (BOYLE, 1979) INDICATES THAT THESE ARE OF MIOCENE AGE ONLY AND SUGGESTS THAT OUTCROPS OF THE KAMLOOPS GROUP SPATIALLY ASSOCIATED WITH URANIUM ANOMALIES MAY CONTAIN UNDIFFERENTIATED MIOCENE STRATA AND FLOWS. THESE PLATEAU LAVAS CAN BE DIFFERENTIATED FROM EOCENE VOL-CANIC ROCKS AND SEDIMENTS BY CRITERIA DESCRIBED BY MATHEWS AND ROUSE (1963) AND CAMPBELL AND TIPPER (1971). IT IS ALSO POSSIBLE THAT BASAL SEDIMENTS OF THE KAMLOOPS GROUP MAY ALSO CONTAIN URANIFEROUS DEPOSITS.

TERTIARY PLUTONIC ROCKS TWO SMALL STOCKS OF UNIT PTy WEST OF OKANAGAN LAKE CONTAIN OCCURENCES OF COPPER AND MOLYBDENUM. ONE SAMPLE FROM WHITEMAN CREEK NEAR A PLUG OF UNIT PTY HAS ANOMALOUS VALUES OF SILVER, MOLYBDENUM, ZINC, LEAD AND URANIUM. SOME ELEMENTS MAY HAVE BEEN DERIVED FROM UNITS Jg

PLATEAU LAVAS SEDIMENTS OF UNIT mTv WHICH LIE IN CHANNELS AND SMALL BASINS BELOW BASALTIC FLOWS FORM NUMEROUS SMALL OUTCROPS IN THE SOUTHERN PART OF THE PROJECT-AREA. WITHIN THE AREA NO MINERAL OCCURENCES ARE KNOWN IN THESE STRATA BUT IMMEDIATELY TO THE SOUTH, SEVERAL SIGNIFICANT URANIUM DEPOSITS HAVE BEEN FOUND (CHRISTOPHER, 1978; BOYLE, 1979). THE SOURCE OF THE URANIUM IS BELIEVED TO BE FRACTURED JURASSIC AND CRETACEOUS GRANITIC ROCKS FROM WHICH IT WAS TRANSPORTED BY METEORIC WATERS INTO MIOCENE-PLIOCENE FAULT ZONES CONTAINING PERMEABLE CHANNEL SEDIMENTS. (D.R. BOYLE, PERSONAL COMMUNICATION, 1979). ORE DEPOSITION WAS THEREFORE POST-MIOCENE

GOLD OCCURS IN MIOCENE BASAL SEDIMENTS EAST OF WOOD LAKE (343). SIMILAR DEPOSITS ARE FOUND IN MIOCENE SEDIMENTS IN THE PRINCE GEORGE MAP-AREA (TIPPER, 1961). A SMALL OCCURENCE OF PALAGONITE (234) LIES NEAR THE SUMMIT OF TUKTAKAMIN MOUNTAIN NORTHEAST OF VERNON WITH FLOWS OF PROBABLE MIOCENE AGE (B.N. CHURCH, PERSONAL COMMUNICATION,

DISCUSSION OF URANIUM GEOCHEMICAL ANOMALIES RELATED TO MINERALIZATION IN UNIT mTv HAS BEEN DISCUSSED ABOVE. MANG-ANESE AND IRON ANOMALIES ARE PRESENT NEAR OUTCROPS OF UNIT mTv IN SOUTHERN PARTS OF THE PROJECT-AREA.

GLACIAL AND RECENT ALLUVIUM GOLD PLACER DEPOSITS OCCUR IN STREAM GRAVELS THROUGHOUT THE WESTERN AND SOUTHERN PARTS OF THE PROJECT-AREA. THE GOLD LIKELY ORIGINATES IN QUARTZ VEINS IN THE THOMPSON AND SLOCAN ASSEMBLAGES, PLACER OCCURENCES IN SCOTCH CREEK (135, 138) MAY BE SUPPLIED BY VEINS WITHIN THE EAGLE BAY FORMATION. TWO PLACER OCCURENCES (304, 343) EAST OF OKANAGAN LAKE MAY BE DERIVED FROM MIOCENE (?) DEPOSITS. INDUSTRIAL MINERALS INCLUDE HYDROMAGNESITE (205, 206, 210) AND SODIUM CARBONATE (203) NEAR MONTE CREEK AND CLAY DEPOSITS (211, 229, 281).

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> OPEN FILE DOSSIER PUBLIC GEOLOGICAL SURVEY OMMISSION GÉOLOGIQUE OTTAWA

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TERTIARY

mTv PLATEAU LAVA.

eTK KAMLOOPS GROUP.

pTy GRANITIC ROCKS.

Kg GRANITIC ROCKS.

Jg GRANITIC ROCKS.

R JNV NICOLA GROUP.

UPPER TRIASSIC

PALAEOZOIC AND MESOZOIC

UTINS NICOLA AND SLOCAN GROUPS.

PERMIAN AND (?) PENNSYLVANIAN

CARBONIFEROUS AND PERMIAN

MISSISSIPPIAN (?) OR OLDER

LOgn LITTLE SHUSWAP GNEISS.

CAMBRIAN AND ORDOVICIAN

EOEB EAGLE BAY FORMATION.

EOSC SILVER CREEK FORMATION.

MINERAL OCCURENCES

• OO1 LOCATION AND NUMBER.

DEPOSIT TYPE

STRIKE KNOWN

SHEAR OR STRIKE KNOWN

STRIKE & DIP KNOWN

PIPns SHUSWAP METAMORPHIC COMPLEX

PROTEROZOIC AND PALAEOZOIC (MAY INCLUDE ARCHAEAN)

--- GEOLOGICAL BOUNDARIES (APPROXIMATE, ASSUMED).

HIGH ANGLE FAULTS (APPROXIMATE, ASSUMED).

CPTA THOMPSON ASSEMBLAGE.

CARBONIFEROUS

CM MILFORD GROUP.

IPC CHAPPERON GROUP.

IPM n OKANAGAN PLUTONIC AND MESOZOIC COMPLEX.

Pyb Kaslo Group, Fennell and Tsalkom Formations.

LDgn Mount FowLER BATHOLITH, South Fosthall Pluton.

EOEBC TSHINAKIN LIMESTONE MEMBER AND OTHER LIMESTONE UNITS.

___ _ THRUST FAULTS (APPROXIMATE, ASSUMED; TEETH ON HANGING WALL).

STRIKE & DIP KNOWN 240

ORIENTATION UNKNOWN

STRIKE & DIP KNOWN 70

IENTATION UNKNOWN

STRIKE KNOWN

TRIKE KNOWN

OR, IF NOT AVAILABLE, FROM MAP B.

URANIUM

ARSENIC

BARIUM

BISMUTH

CADMIUM

COBALT

CARBONATED

GEOCHEMICAL ANOMALIES

* STREAM SEDIMENT SAMPLE

& STREAM WATER SAMPLE

STRIKE & DIP KNOWN

RIENTATION UNKNOWN |

DEPOSIT TYPES NOT ILLUSTRATED ARE NOT PRESENT IN THIS AREA.

TWO SYMBOLS ARE USED WHERE MINERALIZATION OCCURS IN TWO MAIN MODES.

ORIENTATIONS OF VEIN, SHEAR, AND CONCORDANT DEPOSITS OBTAINED FROM MINERAL DATA FILES

1,000,000

5,000,000

1,000,000

10,000

10,000

10,000

METRIC TONS OF METAL OR MINERAL CONTAINED.

CATEGORIES ARE PRINCIPALLY FOR "SPOT" DEPOSITS

IN WHICH THE COMMODITY IS THE PRINCIPAL VALUE

CONTAINED. CO-PRODUCT VALUES ARE GENERALLY

TOTALED BUT BY-PRODUCT VALUES ARE OMITTED.

PRODUCERS OF INDUSTRIAL MINERALS (SILICA,

CLAY, GRANITE, LIMESTONE, MICA AND QUARRY

STONE) ARE ASSUMED TO BE SMALL IN ABSENCE

OF ESTABLISHED CATEGORIES. TABLE OBTAINED

FROM THE METALLOGENIC MAP OF NORTH AMERICA.

DIATOMACEOUS Mo

COMMODITIES

LIMESTONE

NIOBIUM

PERIDOT

PLATINUM

HYDROMAGNESITE Qr ' QUARRY ROCK

Mn MANGANESE Th THORIUM

PALAGONITE Sr STRONTIUM

ELÉMENTS CODED LIKE COMMODITIES (SEE ABOVE)

Si QUARTZ

CARBONATE

Jr URANIUM

100,000,000 5,000,000

100,000,000 5,000,000

50,000

STRIKE & DIP KNOWN 10 10

ORIENTATION UNKNOWN .

NDICATION PROSPECT

SMALL MEDIUM LARGE

TRIASSIC AND JURASSIC

MESOZOIC

MIOCENE AND/OR PLIOCENE

EOCENE AND (?) OLIGOCENE

PALEOCENE OR EOCENE