



**GEOLOGY OF THE NICOLA GROUP
SOUTH OF ALLISON LAKE
(92H/10E)**

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Mapping in the Nicola Belt in 1975 was continued southward from the area mapped in 1974 to the edge of the Middle Eocene Princeton Basin (Fig. 10). This part of the Nicola Group differs in many respects from areas farther north.

Structurally, the Summers Creek fault which farther north marks a sharp boundary between the Eastern and Central Belts, breaks into a number of northeasterly and northwesterly trending lesser faults in the northeastern corner of the map-area, and swings southeasterly into granitic rocks of the Okanagan Intrusions. Volcano-sedimentary rocks of the Eastern Belt are accordingly found only in the northeastern corner of the map-area, where they pinch out abruptly against faults and granitic rocks of the Okanagan Intrusions.

Similarly, the Allison fault is lost northeast of Dry Lake in an area of poor outcrop. No through-going extension of this structure can be recognized to the south along Allison Creek, though this area is characterized by a number of northwesterly trending dykes and considerable fracturing, alteration, and local faulting.

Stratigraphically, the Nicola rocks in this area exhibit more complications than farther north. South of MacKenzie Lake the basaltic and andesitic flows and associated volcano-sedimentary rocks of the Central Belt are overlain by a subaerial assemblage of rhyolitic and andesitic flows and breccias with abundant associated ash flows and laharic deposits. This succession appears to overlie unconformably both the more basic Nicola rocks and at least some phases of Allison pluton, but is in turn cut by phases of the Jurassic Okanagan Intrusions and by several other stocks. This assemblage is also locally weakly mineralized and affected by faults and alteration that do not seem to involve younger Cretaceous and Tertiary strata.

It appears therefore that this suite of acid volcanic rocks, some of which have been mapped as part of the Nicola Group and some as part of the Cretaceous Kingsvale Group (Rice, 1947) is more extensive than previously recognized and somewhat younger than the more basic Nicola strata and at least of parts of Allison pluton. This succession is provisionally considered to be of Early Jurassic age, and possibly still part of the Nicola Group, but clarification of both its age and status must await forthcoming radiometric age dates of the Allison pluton and possibly further field mapping.

The southern part of the map-area is characterized by a complex succession of basic Nicola flows, breccias, reefoid limestone, and associated volcano-sedimentary rocks that are cut by a number of small, irregular stocks of reddish granitic and syenitic rocks. Over

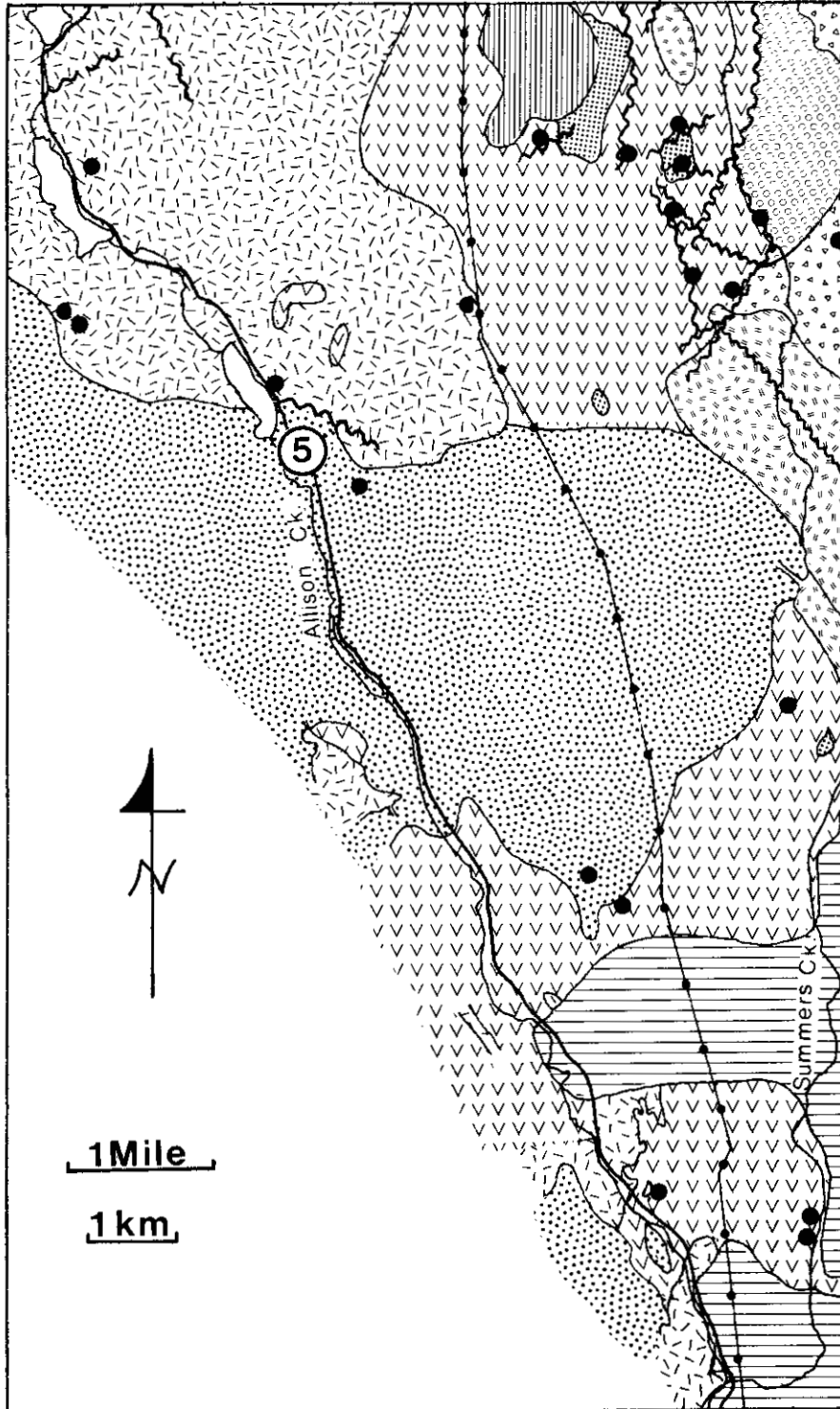



Figure 10. Generalized geology between Allison Creek and Summers Creek.

LEGEND

MIDDLE EOCENE

PRINCETON GROUP


 CONGLOMERATE, SANDSTONE, SILTSTONE, AND MINOR BASALTIC FLOWS

POST-TRIASSIC

 RED CONGLOMERATE, MINOR LIMESTONE

JURASSIC


OKANAGAN INTRUSIONS

 GREY GRANODIORITE AND QUARTZ MONZONITE, MINOR RED AND GREY GRANITE

UPPER TRIASSIC OR LATER

 ANDESITIC TO RHYOLITIC FLOWS AND BRECCIAS WITH ASSOCIATED ASH FLOWS AND LAHARIC DEPOSITS

ALLISON INTRUSIONS

 GREY DIORITE, QUARTZ DIORITE, AND GRANODIORITE; RED GRANITE, QUARTZ MONZONITE, AND MINOR SYENITE

UPPER TRIASSIC


NICOLA GROUP


EASTERN BELT

 VOLCANIC SANDSTONE AND SILTSTONE

 AUGITE PORPHYRY FLOWS AND BRECCIAS

CENTRAL BELT

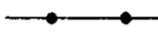
 GREY DIORITE AND QUARTZ DIORITE

 BASALTIC AND ANDESITIC FLOWS AND BRECCIAS WITH ASSOCIATED TUFF, VOLCANIC SEDIMENTS, AND IMPURE LIMESTONE

SYMBOLS

 MINERAL SHOWINGS

 FAULT

 POWER TRANSMISSION LINE

most of the area, and especially near the stocks, the country rocks are strongly fractured, bleached, pyritized and silicified, and locally sheared and faulted. This fracturing and alteration are stronger along Allison Creek where most of the stocks are found, but a southern continuation of Allison fault, as indicated by previous workers (Rice, 1947), was not recognized.

Middle Eocene sedimentary and minor volcanic rocks of Princeton Basin unconformably overlie Nicola rocks to the east and south. The unconformity is well exposed in a highway cut at the junction of the Summers Creek road and Highway 5. Indication that the pre-Princeton erosion surface must have been very irregular and of considerable relief is provided by the very sinuous Princeton-Nicola contact which in three places completely straddles the high ridge between Allison Creek and Summers Creek, with no apparent evidence of post-Princeton faulting.

MINERAL DEPOSITS

Copper occurrences in the map-area are found in most rocks older than Okanagan Intrusions, but the only showings of considerable interest are those of the Axe prospect of Adonis Mines Ltd. northeast of MacKenzie Lake. The Axe showings occur on the steep west slope of Summers Creek and on the plateau to the west over an area of more than 6 square kilometres. The showings have been grouped into five zones known as the South, Main, Adit, North, and West zones, and have for the past several years been the object of extensive exploration by a number of companies. Copper and molybdenum mineralization occurs in Nicola volcanic rocks and in intrusive rocks that range in composition from mafic diorite to leucocratic quartz porphyry. All of these rocks are extensively faulted, fractured, and altered over a very large area. Rock alteration includes most assemblages that are commonly known to be associated with porphyry deposits.

Though extensive trenching and drilling have outlined several mineralized bodies of considerable proportions, exploration to date has not disclosed a body of economic size and grade.

ACKNOWLEDGMENTS

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REFERENCE

Rice, H.M.A. (1947): Geology and Mineral Deposits of the Princeton Map-Area, British Columbia, *Geol. Surv., Canada*, Mem. 243.