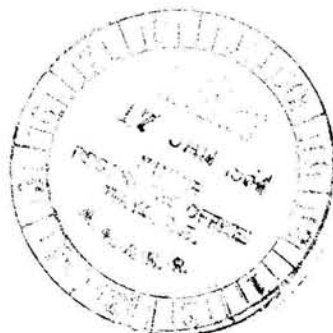


REPORT ON
THE GEOLOGY OF
THE ARGENT GROUP, MINERAL CLAIMS
MAYO M.D. Y.T.

BY

A.E. AHO AND
D. TEMPELMAN-KLUIT



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Argent Group

Table of Geologic Formations

Dark grey aphanitic volcanic
(plug?)

Tertiary age

Biotite Lamprophyre
(dike or sill)

Laramide or Tertiary age

Grey Schist
Limestone
Greenish Quartz mica
Schist

Roughly equivalent to
Upper Schist, age undetermined

Grey Quartzite
(Keno Hill type)
and interbedded schists

Equivalent to upper parts of
Central Quartzite formation
as on Shanghai property

Report On

ARGENT GROUP CLAIMS

Mayo Mining District
Yukon Territory

INTRODUCTION

The Mayo district is Canada's largest silver producer and with present demand in excess of new production, silver is assured of a bright future, making this district attractive for exploration.

Recent work by Silver Titan Mines has shown that mineralization similar to that of the productive part of the Mayo district occurs on both north and south sides of McQuesten valley, and that the Argent group, with similar geology and northeast vein-faults may contain similar mineralization.

GENERAL CONDITIONS

Location and Access

The Argent group of claims lies between 2500 and 3000 feet elevation at latitude 63°56' N longitude 135°49' W, ½ mile north of McQuesten River, 5 miles west of the Shanghai property and 10 miles west of Elsa, Yukon.

The claims, about 37 miles by road from Mayo, can be reached by hiking about 1½ miles north from the Proctor Road and crossing McQuesten River enroute. There is no trail road leading direct to the property.

Topography and Overburden

Topography consists of a moderate locally steep, south-facing slope mantled largely by overburden and modified in detail by an east-west draw or break in slope which contains permafrost.

The base of the slope is mantled by alluvium of the McQuesten River valley, but outcrops are common in parts of the sloping section of the claim group.

Facilities

The claims lie within reasonable reach of most facilities in this district.

Timber, Water

Local spruce and birch timber on the claim group is sufficient for preliminary exploration; mine timber can be purchased from Proctor Construction camp 6 miles up the road toward Mayo.

Water in the creeks is sufficient for camp use; larger sources would have to be investigated further.

Climate

Climate is typical of this area with cold winters and cool summers, but presents no unusual difficulty to year-around mining.

The low elevation and south facing exposure of this locality are advantages over present operation sites.

Costs

Although this remote district faces higher than average operating costs, this is offset by the rich silver content of the area and profitable operating has been maintained for many decades in this district.

The reader is referred to a CIMM paper (1961) in which United Keno Hill Mines staff presented costs of operation and also to the Canadian Mines Hand Book (1962) on United Keno Hill Mines.

History

Since 1912 the Mayo mining district of Yukon has produced about 130 million ounces of silver, 400 million pounds of lead, 230 million pounds of zinc and 3 million pounds of cadmium, totalling about \$240 million at present prices.

Most of this production has come from United Keno Hill Mines since 1947, and further exploration is continuing to show up more ore so that continued production may be anticipated for many years to come.

The Argent group of claims, first staked in October, 1962, is in the general vicinity of 250-ounce silver float reported in the past, which has been the object of several short prospecting trips by different individuals. In 1961 A.E. Aho and Cecil D. Poli prospected and examined the general locality at which time the presence of Keno Hill type quartzites and two or three possible NE breaks and a possible NW break was recognized and roughly mapped. In the spring of 1962 R.E. Gordon Davis, R. Oddy, and A.E. Aho spent five days mapping and prospecting the area. It was staked in October, 1962, and was geologically mapped and studied by Dirk Tempelman-Kluit who spent 7 days on the property in 1963. Two select grids were also soil sampled and geochemically tested in 1963.

The present report is a compilation of the above data in conjunction with Tempelman-Kluit's mapping.

PROPERTY

The Argent group consists of 8 claims, Argent 1 - 8, grant no.'s 82503-82510 inclusive, recorded in October, 1962, and presently held by Silver Titan Mines Ltd. in trust for the Titan Project.

DISTRICT GEOLOGY AND MINERALIZATION

The main productive mines in the district occur at intervals along Keno and Galena Hills, and consist of northeast-striking, southwest-dipping vein fault systems in which the ore is localized mostly in the more massive greenstones and quartzites of the Central Quartzite formation, overlain and underlain respectively by the Upper and Lower Schist formations. The ore is localized chiefly in the more massive members of the central quartzite formation, particularly where vein-faults intersect or branch (dilation effect), where they pass upward into less competent schist or thin-bedded quartzites (damming effect), and often near minor or major northwest-striking cross-faults.

The pattern of veins and faults in this district appears to be generally related to tensional conditions associated with the N70°E-trending McQuesten "anticline" or elongate antiform dome. The Argent property contains some of these NE and NW fault structures on the north limb of this anticline, in north-dipping quartzite host rocks of type similar to those on the south limb.

GEOLOGY OF THE ARGENT GROUP (See accompanying map and structural diagrams)

Only a brief description of the most important features is intended. No repetition is made of information given in previous reports. An attempt is made to contrast the geologic features at the Argent and the Shanghai.

The writer spent 7 days on the property during May, 1963.

Lithology

The rocks that underlie the map area are mainly Keno Hill type quartzites and interbedded phyllite, overlain by Upper Schist, all quite similar to those at the Shanghai. Their distribution is shown on the accompanying geologic map. Differences between rock types on the Argent and the Shanghai are pointed out below.

Dark Grey Aphanitic Volcanic?

This rock was observed at one place on the Argent; it does not occur on the Shanghai. It shows cross cutting relationship to the schist and occurs in a small outcrop about 40' x 20'. It may be a volcanic neck or feeder. The rock is dark grey, unpolished, aphanitic and is irregularly fractured. Calcite lines some of the fractures. No detailed description can be given without a thin section.

Biotite Lamprophyre

Biotite lamprophyre identical to that on the Shanghai occurs in a few small, scattered, sill like masses within the area.

Rhyolite Porphyry

This rock type occurs at only one place on the Argent. It is quite similar to the biotite porphyry on the Shanghai.

Grey Schist

Much of the grey schist is similar to the greenish schists on the Argent and it is not certain whether it is valid to distinguish the two types as they appear to be gradational into one another even along the strike. The distinction is mainly one of colour, although the grey schists are generally more phyllitic than the greenish schists. The grey schists are generally less quartzitic than the greenish schists.

Limestone

The limestone does not appear to be restricted to any particular horizon in the schists. Limestone, very similar to that at the Shanghai occurs in thin lenses or beds up to 2 feet thick in the greenish quartz mica schists.

Greenish Quartz Mica Schist

These rocks are lithologically identical to the Upper Schist at the Shanghai. The presence of some limestone has already been noted and this fact seems to support the suggestion that these two units may be stratigraphic equivalents.

Grey Quartzite

The grey quartzite at the Argent is not the same as that at the Shanghai. At the Argent this quartzite is in general lighter in colour (i.e. it is medium to light grey in contrast to the medium to dark grey colour of the quartzite at the Shanghai). Furthermore, the quartzite at the Argent is generally less siliceous and "grittier" than that at the Shanghai.

In addition to these general difference there appears to be a tendency for the quartzite to be more siliceous and darker in colour (i.e. more like the quartzite at the Shanghai), at the east end of the map area than at the west end. This change in the properties of the quartzite is gradational.

No outcrops of greenstone were noted on the Argent.

Relative Ages

The relative ages of rock types are the same as those at the Shanghai.

Basic Structural Pattern

The structural pattern at the Argent is nearly the same as that at the Shanghai. Phase I, III and IV as recognized at the Shanghai are also found on the Argent. No evidence of phase II was noted.

MINOR STRUCTURES

The following discussion is intended to be a brief contrast of the attitude of minor structures at the Argent to those at the Shanghai. The reader is referred to the accompanying stereograms throughout the discussion.

Phase I

Minor structures of phase I on the Argent are identical to those of that phase on the Shanghai except that their axes plunge to the east rather than to the west. This change in plunge direction is considered to be due to a major phase III structure between the two areas.

Phase III

Phase III on the Argent is identical to phase III at the Shanghai. The average plunge is 343/15 at the Argent and 342/18 at the Shanghai. The spread of phase I linear fractures is considered to be due to the action of phase III folding.

Jointing is not prominent on the Argent in contrast to the Shanghai and no attempt has been made to do a statistical analysis of joints. 'ac'-joints to phase I were noted in some of the more massive quartzites at the east end of the Argent surfaces.

Faulting - Phase IV

Faults at the Argent appear to follow a pattern similar to that at the Shanghai. Northeast trending faults appear to dip northwestward on the basis of topographic evidence; movement is as indicated.

At the east end of the area a major northwest trending fault cuts off the quartzites on the west. On the basis of the amount of movement indicated here and the trend of this fault where determined, it is presently thought that this may be the continuation of the Haldane-Haggart Creek faults. The structural variation across this fault on the Argent is not similar to that further north on the Peso property.

Overall Structure

The fold structure on the Argent can be given only for the lower or southern-most part where the quartzites provide a good marker horizon. As the plunge is variable due to phase III folding only a sketch of the cross section is given. This cross section is typical of a phase I fold and shows the relative south up and over north sense of these folds.

X section
Does not
exist.

MINERALIZATION ON THE ARGENT GROUP

The only signs of mineralization found so far on or near the Argent group are as follows:

- (a) A silt geochemical anomaly and rusty cemented gravel and talus on Gerlitzki Creek west of the claim group.

- (b) Limonite gossan in breccia on Argent No. 3 claim in the NE vein-fault zone that extends up into the Upper Schist sequence.
- (c) Abundant limonite cemented overburden in the vicinity of the second suspected vein-fault zone on the east half of the claims (Argent 6 and 8)

It is also possible that a strong NE vein-fault zone may extend across the mouth of Argent Creek, in view of the changes in geology and sharp local change in attitude of the Keno Hill type quartzites at the minor stream just east of the creek. However, this area is covered with deep overburden and would become an exploration target only if other zones in the vicinity show good mineralization and other work suggests that this locality has possibilities.

CONCLUSIONS

Although local soil sample grids were sampled and tested over both (b) and (c) for both mercury and heavy metals with no significant results, experience with similar conditions on the Shanghai property has shown that this does not preclude the possible presence of significant high grade mineralization.

Direct physical test-pitting or trenching by hand or with a bulldozer is the only way in which the actual presence or absence of significant mineralization can be tested in these vein-fault zones.

These zones do not appear to be as strong as the main zones on the Shanghai, UR, and Galena Hill properties and the exposed section of competent rocks does not appear to be as thick and therefore probably not as favourable, however, a minimum amount of direct physical prospecting is definitely warranted.

The Gerlitzki Creek section (a) should be examined in more detail to see what additional work might be justified or feasible.

The Argent No. 3 vein fault (b) should be trenched and test-pitted.

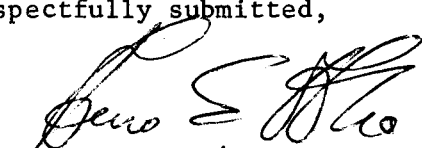
The limonite cemented area (c) is more difficult to explore due to more extensive overburden but perhaps after additional geochemistry or some other indirect approach, bulldozer trenching may be warranted.

RECOMMENDATIONS

It is recommended that the Argent group and its vicinity be examined closely with a view to deciding on the location and extent of physical work that would be warranted to test the indicated vein-fault zones for mineralization.

This work should be planned for August or September, 1964.

Respectfully submitted,


Dr. A. E. Aho.

Exerpt from "A report on the geology of the main Shanghai claims in Mayo Mining District" by D.J. Tempelman-Kluit to accompany "Geologic Report on Argent 1-8 claims".

Basic Structural Pattern

Four distinct phases of deformation can be recognized in the field. These phases are referred to in this report by successive Roman numerals. The relative ages of these four phases were determined from field relations.

Phase I; the dominant phase of folding has produced isoclinal to sub-isoclinal recumbent folds, whose fold axes plunge to the west.

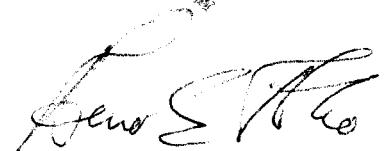
Phase II; is a folding phase which has produced sub-isoclinal folds on SW plunging axes.

Phase III; is the latest folding phase. It has produced open warps on NW plunging axes.

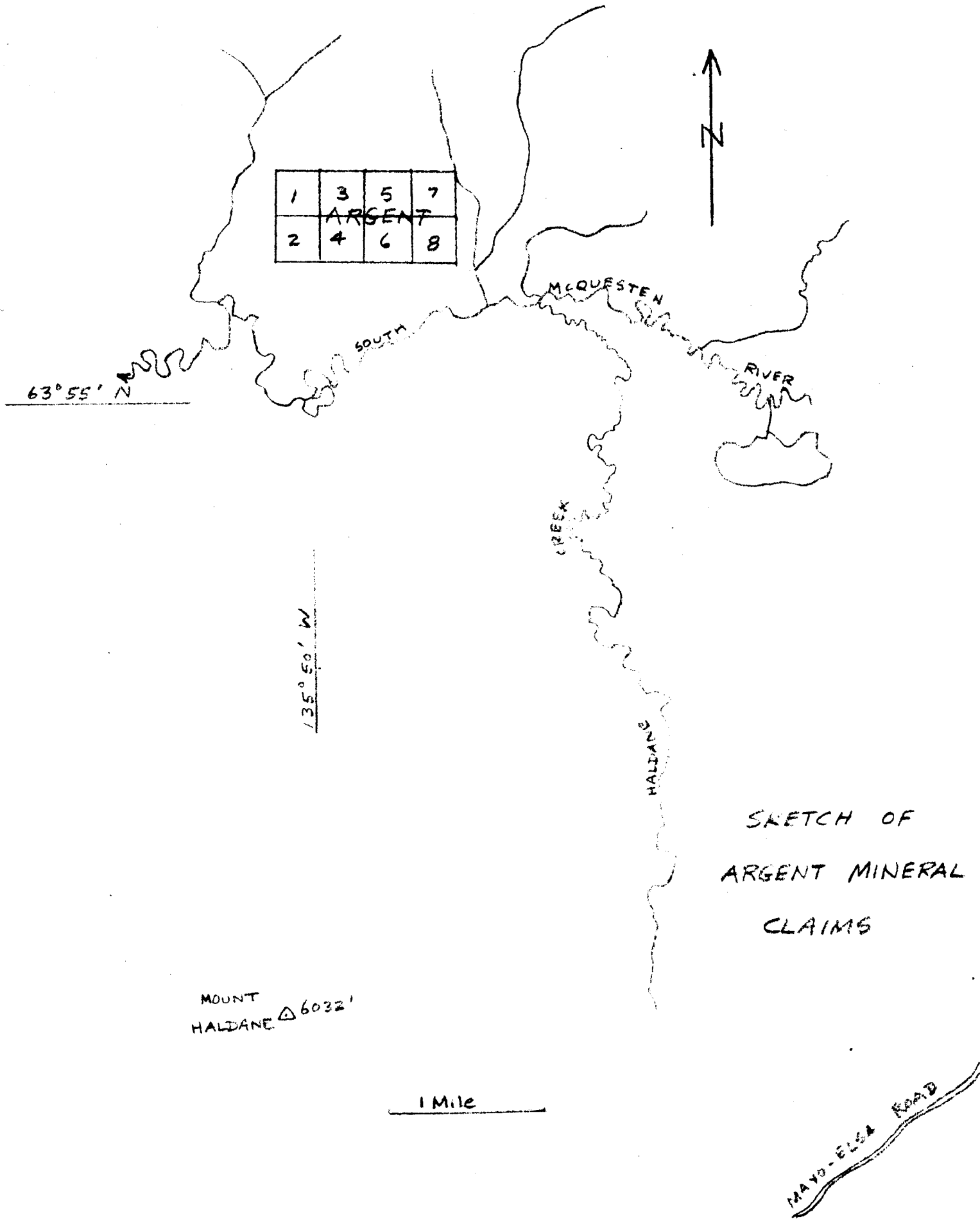
Phase IV; is a brittle phase which produced genetically related features and faults of two main types.

1. Northwest trending NW dipping vein faults.
2. Northwest trending, near vertical cross faults.

Respectfully submitted,



Dr. A.E. Aho



1	3	5	7
ARGENT			
2	4	6	8

SKETCH OF
ARGENT MINERAL
CLAIMS

MOUNT
HALDANE Δ 6032'

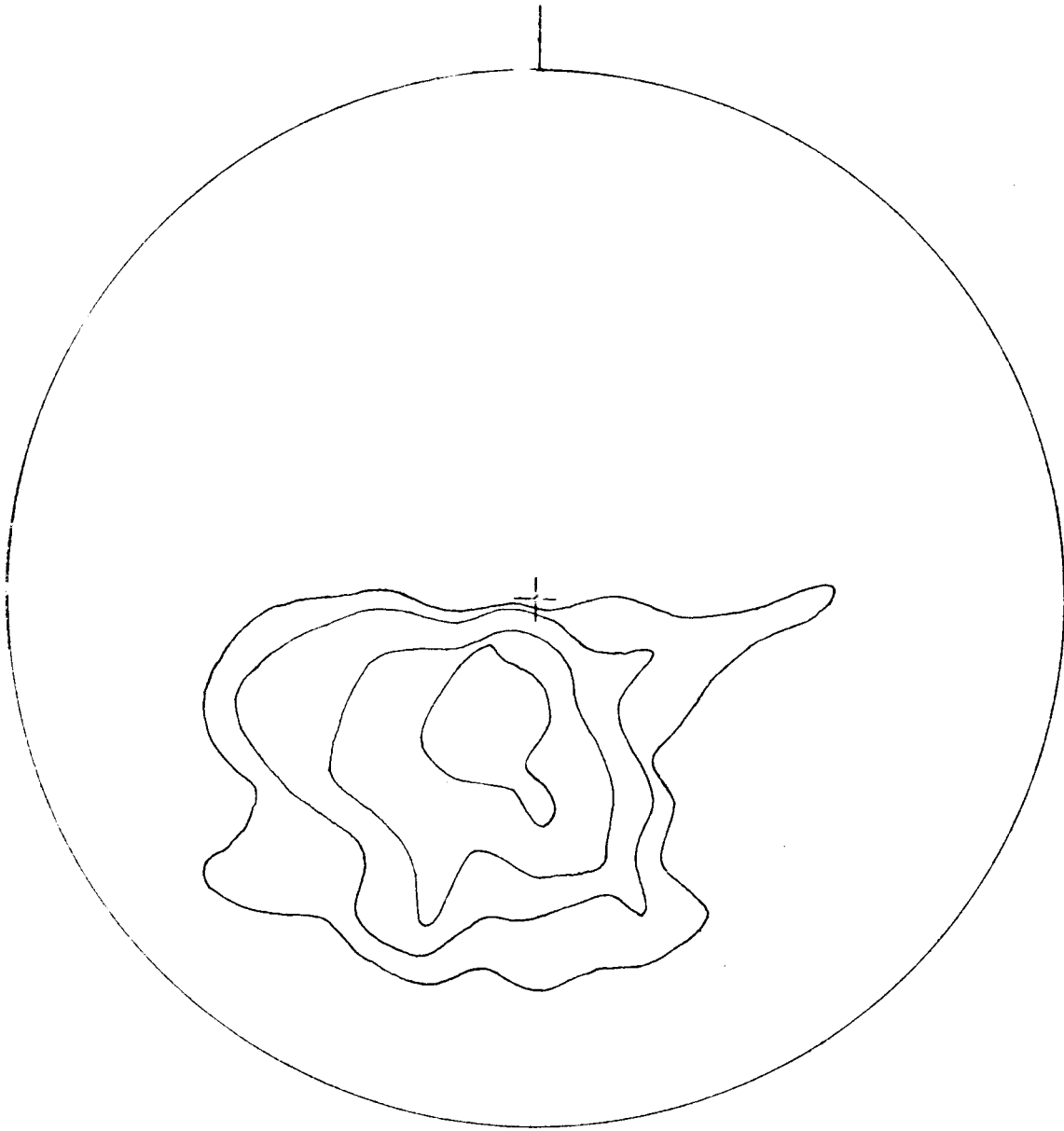
1 Mile

MAYO-ELSA ROAD

Argent- Polas to bedding foliation

Contours at 1, 2, 5, 10% per 1% area.

185 plotted

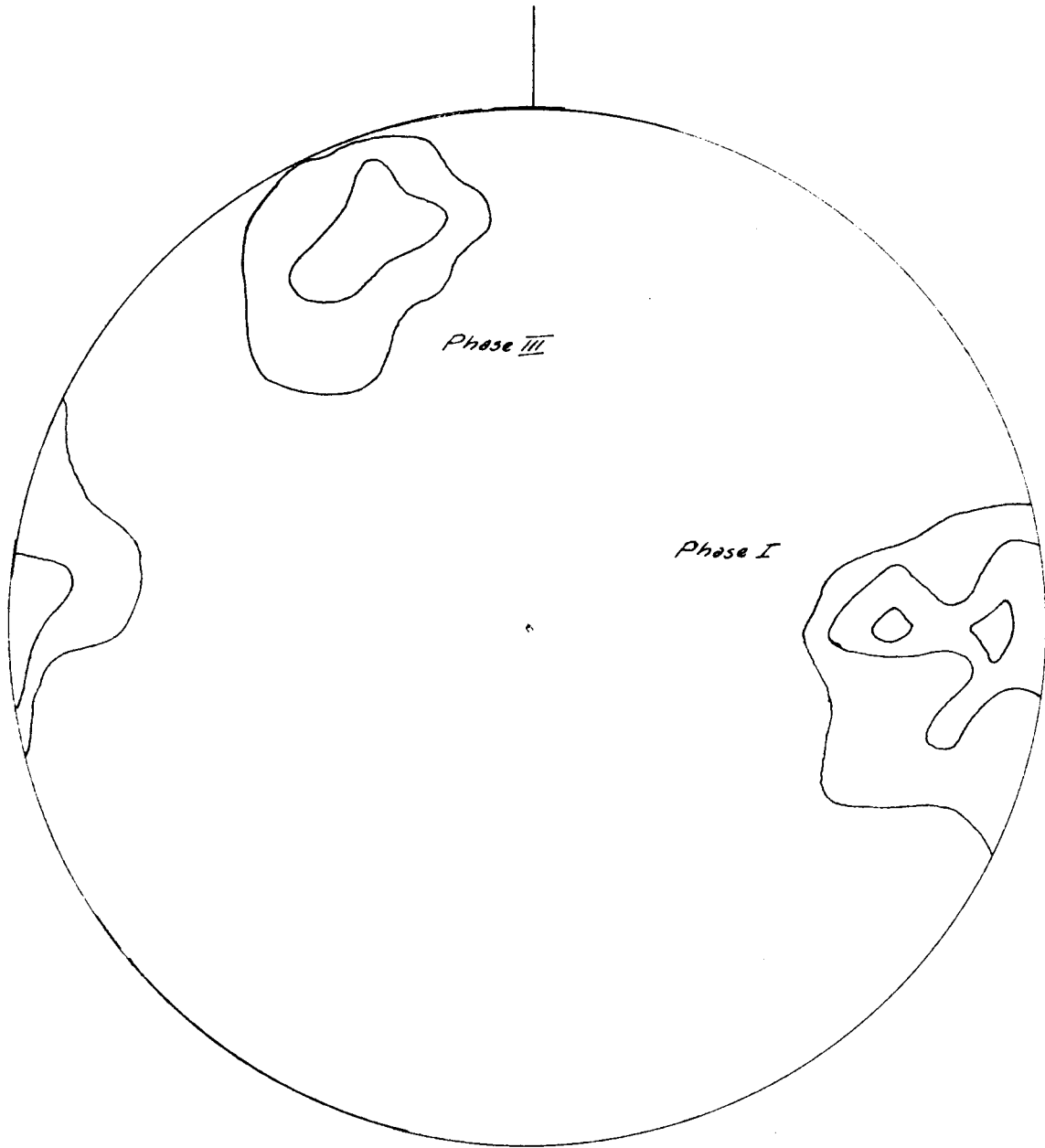


Schmidt Equal Area Projection

Argent - Lineations and Fold Axes

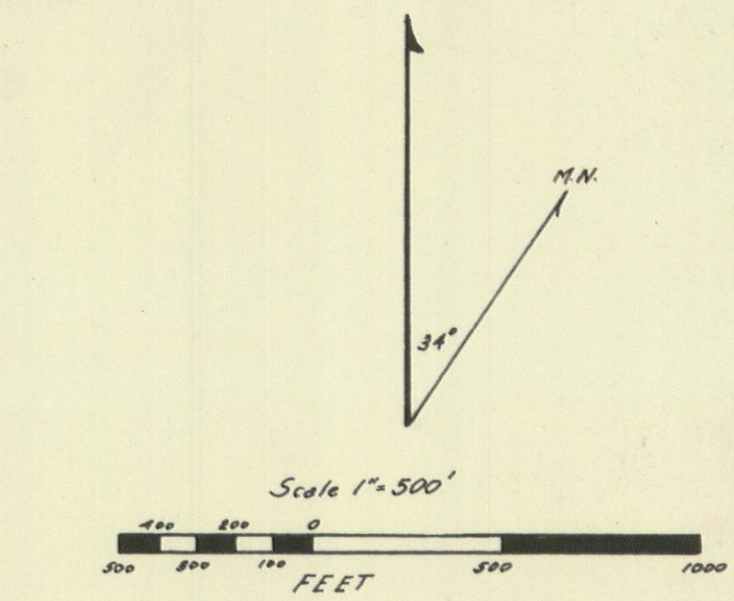
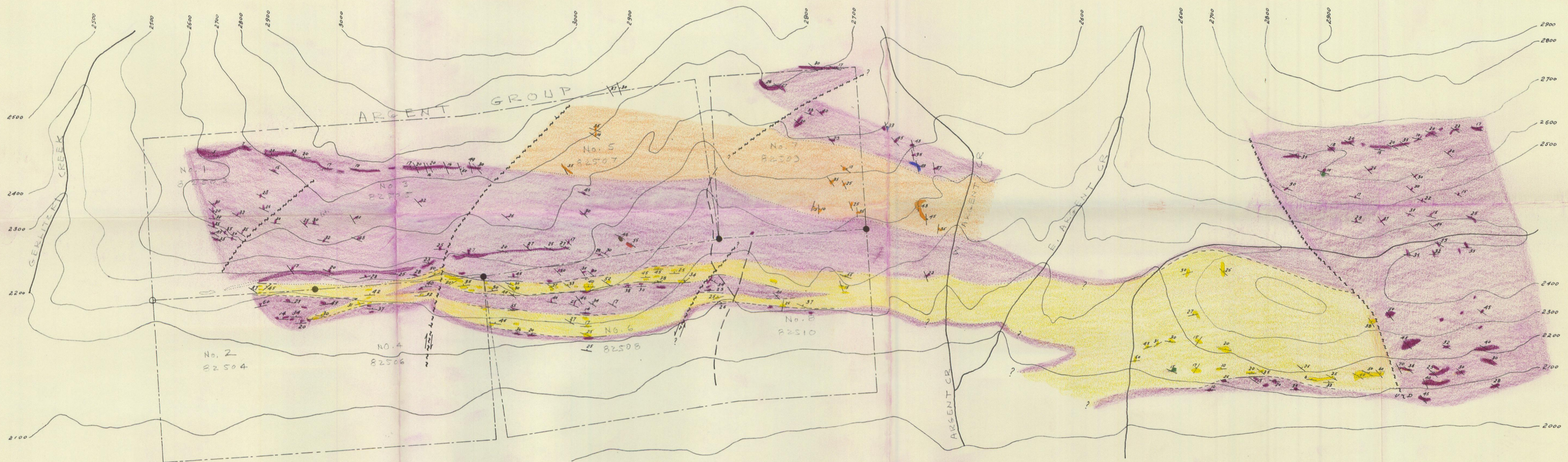
Contours at 2, 5 & 10% per 1% area.

*65 lineations
20 fold axes*



Schmidt Equal Area Projection

GEOLOGIC MAP OF THE ARGENT GROUP



LEGEND

- Dark gray volcanic
 - Biotite lamprophyre
 - Rhyolite porphyry
 - Grey schist
 - Limestone
 - Greenish schist
 - Grey quartzite
 - Outcrop
 - Geologic contact defined
 - Geologic contact approximate
 - Geologic contact assumed
 - Dip & strike of bedding solution
 - Fault
 - Creek indefinite
 - Creek intermittent
 - Claimpost accurate
 - Claimpost approximate
- Base map enlarged from 1:50,000 scale maps of Dept. of Mines and Technical Surveys.
 Map of Geology by D. Tempelman-Kluit.