

R. W. Hutchinson
May 31, 1973

Falcon and West Hawk Lakes
Manitoba

near

Geological Appraisal
of
Gold Properties

1. Introduction

At the request of Mr. R.D. Skogsberg, president of Star Lake Gold Mines Ltd, a visit was made on May 2, 1973 to

various gold prospects near West Hawk and Falcon Lake in

southeastern Manitoba. This visit was made in company with

Mr. Skogsberg and its purpose was to make a geological appraisal of gold exploration possibilities on the properties now con-

trolled by Star Lake Gold Mines Ltd. During the day the old

shaft sites of Homestake Explorations Ltd., and Star Lake Gold

Mines Ltd., were visited, and exposures of various rocks near

these old workings were examined. In addition other rock types

in the region were also briefly examined and weak sulphide

mineralization, reported to contain values in gold in some of

these rocks was superficially studied. This report summarizes

some of the geological characteristics observed in the area

that are considered to be of possible significance in eval-

uating exploration possibilities for gold. It also outlines

briefly three specific exploration possibilities thought to

warrant investigation.

It is emphasized that this appraisal was carried out in

a single day and that only surface geological features were

investigated. No samples were taken to check early reported

assay results and no data was available that would permit a

recalculation and check on earlier reported ore reserve

estimates in the old Homestake workings. Similarly no data

is available that would permit an estimate of possible mine operating costs, and no such estimate has been attempted. All underground workings are presently flooded and inaccessible, preventing examination and appraisal of possible operating conditions. This examination and report deals, therefore, solely with the geological features observed and with their possible significance to exploration possibilities for gold mineralization.

2. General Geology

All the rocks of the area are of Archaean age, and these include both Keewatin type volcanic rocks and Timiskaming type sedimentary rocks. The former include mainly andesitic and basaltic lavas, some of them spectacularly pillowed, as well as a few more felsic volcanic rocks of dacitic to rhyolitic composition. Intercalated with the mafic to intermediate lavas are interflow pyroclastic, agglomeratic and tuffaceous beds that often contain sulphides, mainly pyrite and pyrrhotite, but occasionally chalcopyrite, sphalerite and galena. The Timiskaming rocks include mainly a thick sequence of conglomeratic and volcanoclastic sedimentary rocks probably derived from the volcanic rocks, or from the volcanism that deposited them, and possibly representing the lateral "basinal" equivalents of the volcanics. All these rocks strike north-easterly and dip steeply either to the northwest or southeast. They have been isoclinally folded about northeast trending axes.

to be of mineable size and/or grade.
and have been explored superficially but have not yet proven

metal sulphide-bearing zones also occur in the volcanic rocks
and are briefly described below. Scheelite-bearing and base-

the Star Lake Prospect were visited during this examination
took place. Two of these, the Homestake Exploration deposit and
the first discoveries were made and 1953 when the last activity
able deposit were investigated in the area between 1890, when
Several gold prospects, occurrences and one small mine-

3. Gold Deposits

complete descriptions of the regional geology and rock types.

J.F. Davies. Readers are referred to this report for more
Branch, Manitoba. Dept. of Mines and Natural Resources, by
described in greater detail in publication 53-4 of the Mines

These rocks and their geological relationships are

lithic body intrudes these rocks south of Falcon Lake.
Falcon Lake-West Hawk Lake greenstone belt. A similar batho-

gneissic granite which forms the northern margin of the
are invaded on the north by a large batholith body of
extrusive Keewatin lavas. The Keewatin-Timiskaming rocks

subvolcanic stock that is essentially co-volcanic with the
inner core. In the writer's opinion this intrusion may be a
matic (gabbroic) outer margin and a more felsic (monzonitic)

Lake stock. This is a zoned composite intrusion with a more
of gabbro-diorite-syenodiorite-monzonite known as the Falcon
intruding all these rocks is an elliptically-shaped body

The Homestake deposit (formerly called the Sunbeam), which is the only gold occurrence that produced significant tonnage of ore, is located within the Falcon Lake stock. The deposit consists of a body of silicified quartz-monzonite rather than a quartz vein or vein network. This body is elliptical in shape and is known from underground workings and drilling to be continuous from surface to a depth of 475 feet. A report by J.F. Wright, Consulting Mining Geologist, prepared for the management of Goldbeam Mines Ltd. (in the owners-operators at that time) in March, 1943, estimated the ore reserves in this deposit as follows:

150	"	250	"	"	"	26,000	"	"	"	0.223oz. Au"	"
250	"	350	"	"	"	24,000	"	"	"	0.26oz. Au."	"
350	"	475	"	"	"	28,000	"	"	"	0.236oz. Au"	"
total - 110,000 tons at 0.256 oz. Au / ton											

This estimate was based on results of extensive underground bulk and channel sampling, and diamond drill core assays. Although the writer has had no data or first hand opportunity from which to check these estimates, there is no apparent reason to question their reliability and they are therefore believed to be accurate.

The mineralized body plunges about N 30' W within the stock. If continuous to depth, it would therefore intersect the southeast dipping volcanics north of the stock at about 3,000 feet. It consists of sparse disseminated sulphides,

mineralized interflow tuff bands resemble similar strata Falcon Lakes resemble those of the Vipond series, and the Ontario. The mafic and intermediate lavas at West Hawk and important gold-producing districts, particularly Porcupine in geologic relationships and rock types to those in other Star Lake Gold Mines Ltd., is the similarity of general properties, which have recently been merged under the new area, including both the former Homestake and Star Lake Nevertheless, perhaps the most attractive aspect of this make a thorough evaluation of exploration possibilities. In the time spent on the ground it was impossible to

a) General

4. Some possibilities

located and mineralized pipe at about 3000 feet. to depth they would "intersect" the Homestake (Sunbeam) sill-strike about N 65° E and dip about 80° southeast. If continuous Where exposed at surface the sulphide-bearing schists ton, and some erratic high values in Pt. were also reported. reported, grade across a few feet was said to be 0.30 oz. per foot level "spot" assays up to several ounces per ton are The old shaft (to 65 feet) is now inaccessible but on the 65 trenches are reported to contain up to .06 oz. per ton Au. of these rocks taken by Mr. R. Skogsberg in the old surface beds. No gold is visible but assays of recent chip samples that are probably sheared interflow tuffaceous-pyroclastic mineralization consists of sulphide-bearing siliceous schists contact between these rocks and the Falcon Lake stock. Here

within the Vipond lavas although where exposed they lack the
 conglomeratic rocks are also similar to those carrying gold
 mineralization at Porcupine. The Falcon Lake stock is not
 unlike the Pearl Lake, Preston or Paymaster porphyries although
 its specific petrology is somewhat different. All these
 similarities suggest favourable geologic conditions and
 indicate that some additional exploration work is warranted.
 Three specific possibilities should be considered.

b) Down-plunge exploration of the Homestake "pipe"
 The Homestake mineralized pipe plunges about N 30°W at
 about 60° and might intersect the SE dipping Star Lake "zone"
 at a depth of about 3000 feet, assuming both are continuous.
 The possibility merits consideration because the Falcon Lake
 stock may be a subvolcanic intrusion that is co-magmatic with
 the lavas. If so, the Homestake "pipe" may represent an old
 fracture-feeder vent system up which mineralizing fluids
 moved toward surface. In this case, they may have deposited
 gold both in this feeder vent and also in the interflow turf
 beds when they emerged at surface. These concepts might
 explain the slight downward expansion of the pipe, which
 represents its original expansion toward, and approaching
 surface but has subsequently inverted by the regional tectonic
 folding. The intersection of these two zones would represent
 the best possible location for extensive and high-grade min-
 eralization. The small tonnage of ore-grade mineralization in
 the old Homestake workings might provide a short-term base for

operations while this exploration possibility is being tested.

(c) Interflow Tuff Horizons

The Star Lake prospect merits additional exploration and there are unquestionably other mineralized interflow tuff horizons within the lavas that also merit attention. Due to their sulphide content they could probably be explored using a

geophysical method; I.P. would probably be more suitable than E.M. The thick section of mafic-intermediate lavas north

of the Falcon Lake stock should be explored for mineralized interflow tuff horizons.

(d) The Timiskaming Rocks

A thick sequence of volcanlastic and conglomeratic

rocks lies northeast of the Falcon Lake stock. These rocks

contain several minor gold showings and, although they were

not examined during this visit, they may also merit some

exploration by prospecting or geophysical methods.

5. Property Considerations

Exploration of these various gold prospects may in the

past have been hampered by the division of the favorable

ground amongst several small, competing companies. The

current proposal to merge the two most favorable properties,

the former Homestake (Goldbeam) and Star Lake under the single

new Star Lake Gold Mines Ltd. is clearly desirable. It should

improve the efficiency of exploration and geological under-

standing of both properties, and thereby enhance the opportu-

nities for discovering gold deposits of mineable size and grade

in both cases.

and development. This would be designed to re-assay and underground workings for a program of underground exploration

b) unwatering the old Homestake and Star Lake shafts and

zone.

a) drilling deep surface holes to test the possible junction at depth of the Homestake mineralized pipe and the Star Lake

program to the possibilities of:

5. Consideration should be given at a later stage in the

or be extensions of any of the several known gold occurrences.

particularly any indications that appear to coincide with,

should be tested with shallow surface diamond drill holes,

4. Any favorable geological and geophysical indications

to respond to I.P. surveys.

few percent of sulphide minerals which should be sufficient

known gold mineralization is associated in all cases with a

zation in these three rocks. This is recommended because

probably I.P., to outline zones of weak sulphide minerali-

3. The work should also include geophysical surveys,

conglomerates.

Keewatin lavas and interflow tufts, and the Timiskaming type

rock types; the Falcon Lake Stock; the mafic-intermediate

outline areas underlain by the three potentially favorable

2. The work should begin with geological mapping to

line-cut grid system will be required for this program.

properties appears warranted and should be undertaken. A

mineralization on the combined Star Lake and Homestake

1. A program of initial surface evaluation for gold

6. Recommendations

It is estimated that recommendations 1 to 4 inclusive could be carried out with an expenditure of about \$60,000. Additional funds would be required for recommendation 5, and for further work to follow up any favorable results of work included under recommendations 1 to 4.

7. Possible Costs

re-check earlier tonnage and grade calculation, evaluate mining costs and problems, and seek extensions of known mineralization at greater depths than can be tested with surface drilling.

8. Certification

I, Richard W. Hutchinson of the City of London, Province

of Ontario do hereby certify that:

1. I am a Consulting Geologist residing at 230 Hunt Club Drive, London, Ontario, N6H 3Z1.

2. I am a graduate in geology holding the degree of B.Sc. from the University of Western Ontario (1950) and the degrees of

M.Sc. and Ph.D. from the University of Wisconsin (1951) (1954).

3. I am a member of the Society of Economic Geologists and of

the Canadian Institute of Mining and Metallurgy, a fellow of

the Geological Society of America and of the Geological

Association of Canada, and a member of the Association of

Professional Engineers of Ontario.

4. I have been practising my profession as a professional

geologist for nineteen years and as a Consulting Geologist for

the past nine years.

5. I have no interest, either direct or indirect, in any

property of affiliate of Star Lake Gold Mines Ltd. or in its

predecessor companies and affiliates. Neither do I expect

to receive or acquire any such interest.

6. The statements made in this report are based on a one-

day visit to, and examination of the Star Lake properties and

its environs on May 2, 1973 and on various earlier reports

by the predecessor companies, its consulting geologists

and engineers.

R. W. Hutchinson



this 28th day of May, 1973.

dated at London Ontario

public.

advertising purposes in connection with sale of securities to the

the Manitoba and Alberta Securities Commissions but not for

7. This report is to be used for qualification purposes with