

“NEPHRITE” JADE IN BRITISH COLUMBIA

G.A.C. Cordilleran Breakfast Talks

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Geological Survey of Canada

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OUTLINE

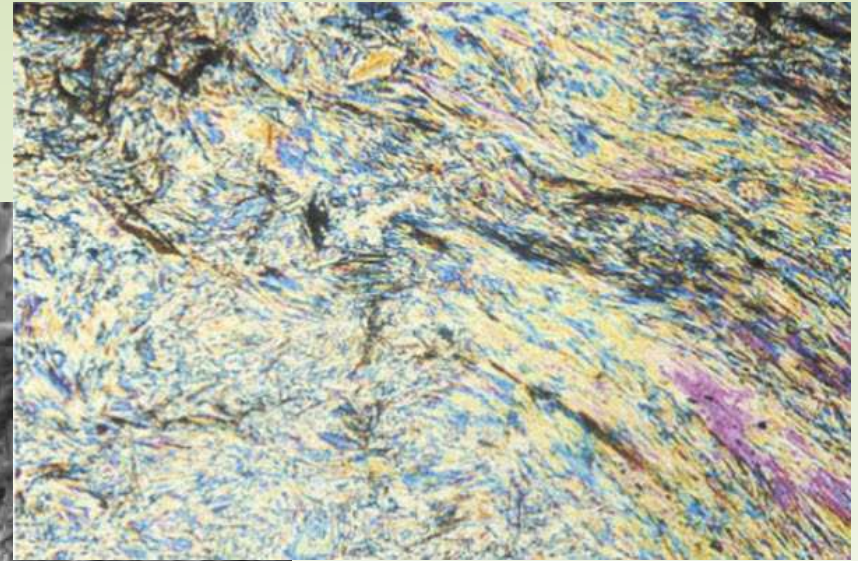
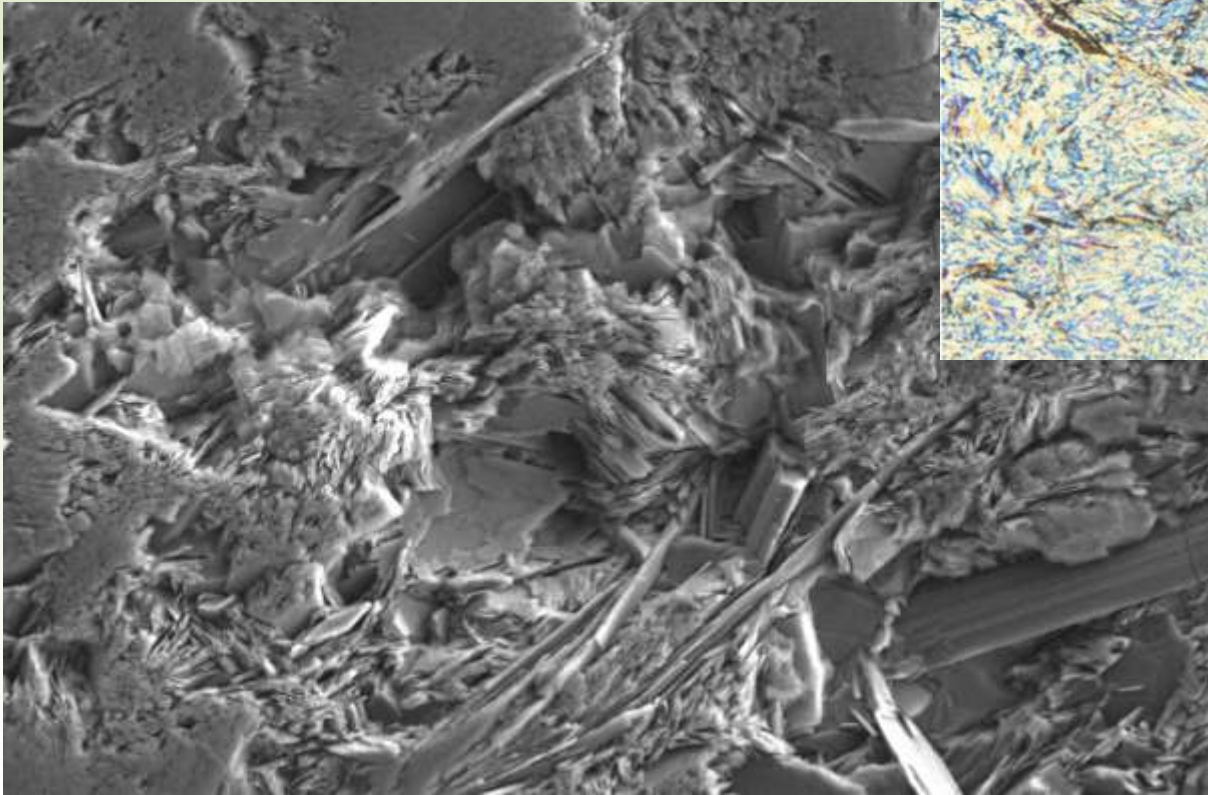
1. Definitions – JADE, NEPHRITE JADEITE
2. Aboriginal and Chinese historical use
3. Look-Alikes
4. Formation of Jade
5. Early Exploration
 1. Cassiar Area
 2. Lillooet Area
 3. Ogden Mountain
 4. Bralorne Area
 5. Yukon Territory
 6. Kutcho – King Mountain
6. Other Countries
7. Examples and Textures
8. Jade and Health
9. Companies
10. On-line sources
11. Acknowledgements and References

NEPHRITE

- Not a separate defined mineral
- Nephrite is an Amphibole -Refers to a Tremolite – Actinolite mixture.
- Texture is fine felted crystals
- Hard and tough
- May contain minor other minerals, magnetite, chromite, chrome mica, garnet, chlorite, diopside

NEPHRITE TEXTURE

MICROSCOPIC FEATHERS



JADEITE

FORMS IN MUCH THE SAME WAY AS NEPHRITE

- BUT: Higher pressure and different host
- A pyroxene mineral
- Harder than nephrite 6.5-7
- Granular crystalline texture
- Multicolours, green grey bluish, lavender
- Not found as gem in Canada (Yet)
- Best quality, bright green is RARE
- Found mainly Myanmar (Burma) some in Guatemala

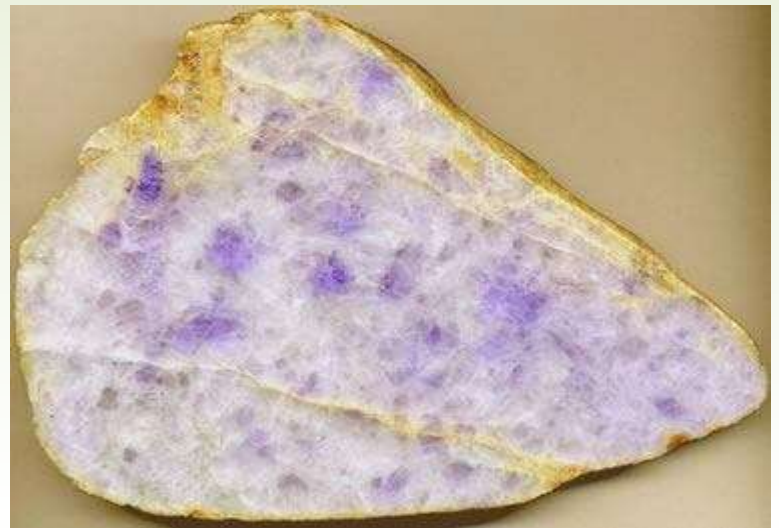
COMPARISON

	Nephrite Jade	Jadeite
Chemical Composition	$\text{Ca}_2(\text{Mg,Fe})_5\text{Si}_8\text{O}_{22}(\text{OH})_2$	$\text{NaAlSi}_3\text{O}_6$ or $\text{Na}(\text{Al,Fe}_3^+)_2\text{Si}_6\text{O}_{18}$
Hardness	6–6.5	6.5–7
Colour	 Green Hues  "Mutton Fat"	 Coloured by impurities - Wide range
Most Sought After Colour	 Emperor Green	 Emperor Green
Diaphaneity	 Translucent	 Translucent
Electra Stone presentation		

JADEITE



Jadeite Colours



ABORIGINAL USE

- Chisels referred to as “Celts”
- Many found in Northern Alberta
- Not many found in BC
- Valuable so traded as high value objects



Found by Dietrich Schultz
Fraser River, Agassiz BC 1962

Jade Celts in Alberta

13 known and two suspected occurrences of nephrite artifacts in Alberta, all of which are ground stone celts. No known in situ nephrite in Alberta, so probably from BC and Alaska. Found in fields but not in Archeological sites.



Chinese Jade

Nephrite Jade has an enormous cultural significance in China. There are many jade locations. White jade artifacts are very valuable and seem to come from Xinjiang Province, south side of Gobi Desert



1535 明 黄玉觥
估 价: RMB 900,000-1,200,000
成交价: RMB 880,000
高 11.5cm 北京翰海 2002-07-01

tomb of the Filial Prince of Liang (Liu Wu, d. 144 BC), now at the Henan Provincial Museum



CHINESE ARTIFACTS



冰清玉洁 (bingqing yujie) , which directly translates to "clear as ice and clean as jade" is a Chinese saying that means to be pure and noble. 亭亭玉立



JADE LOOK-ALIKES

- Phillipine Jade (talc/sericite)
- Aventurine (Quartzite with Fuchsite)
- Diopside
- Maw Sit Sit (Mixture)
- Serpentine
- Bowenite (serpentine)
- Vesuvianite (Happy Camp)

Jade misnomers

- •“African Jade” - a massive variety of green grossularite garnet found in the Transvaal Province of South Africa
- •“Amazon Jade” - amazonite, a blue-green microcline feldspar
- •“American Jade” - californite, a variety of vesuvianite
- •“Bowenite Jade” - a variety of serpentine resembling nephrite
- •“Garnet Jade” - a massive variety of green grossularite garnet
- •“Honan Jade” - a name used for a variety of jade substitutes including jade in quartz, serpentine, soapstone
- •“Mexican Jade” - green-dyed calcite or greenish travertine
- •“Indian Jade” - aventurine quartz
- •“Korean Jade” - a variety of jade look-alikes including glass, soapstone and serpentine
- •“Manchurian Jade” - soapstone
- •“Oregon Jade” - green jasper, green grossularite or other jade look-alikes found in Oregon
- •“Serpentine Jade” - varieties of serpentine that look like jade
- •“Soochow Jade” - name used for a variety of jade substitutes including jade in quartz, serpentine, soapstone
- •“South African Jade” - green grossularite found in the Transvaal Province of South Africa
- •“Transvaal Jade” - green grossularite found in the Transvaal Province of South Africa

Phillipine Jade and Chrysoprase



OTHER GREEN STONES

Happy Camp Jade - California



Vesuvianite BC



Adventurine - India

Fluorite NFLD



MAW SIT SIT “JADE”

Maw sit sit is not a jade. Instead, it is a metamorphic rock composed mainly of kosmochlor, clinochlore, chromian jadeite, and albite, with small amounts of eckermannite, chromite and other minerals.

To date, all known maw sit sit deposits are in a small area of Kachin State of northern Myanmar (formerly known as Burma).



GREENLANDITE

Greenlandite was discovered in the 1960 during the survey of the large iron deposit, Isukasiit, north of Nuuk. Greenlandites' two components are quartz (SiO_2) with a hardness of $H=7$ and fuchsite ($\text{K}(\text{Al},\text{Cr})_2\text{AlSi}_3\text{10}(\text{OH},\text{F})_2$) with a hardness of $H=2.5$. As a result the stone is very hard and can readily be polished to a smooth surface. Varying green (fuchsite) and white (quartz) schlieren (streaks) in the same piece can produce many variants of the stone.



SERPENTINE

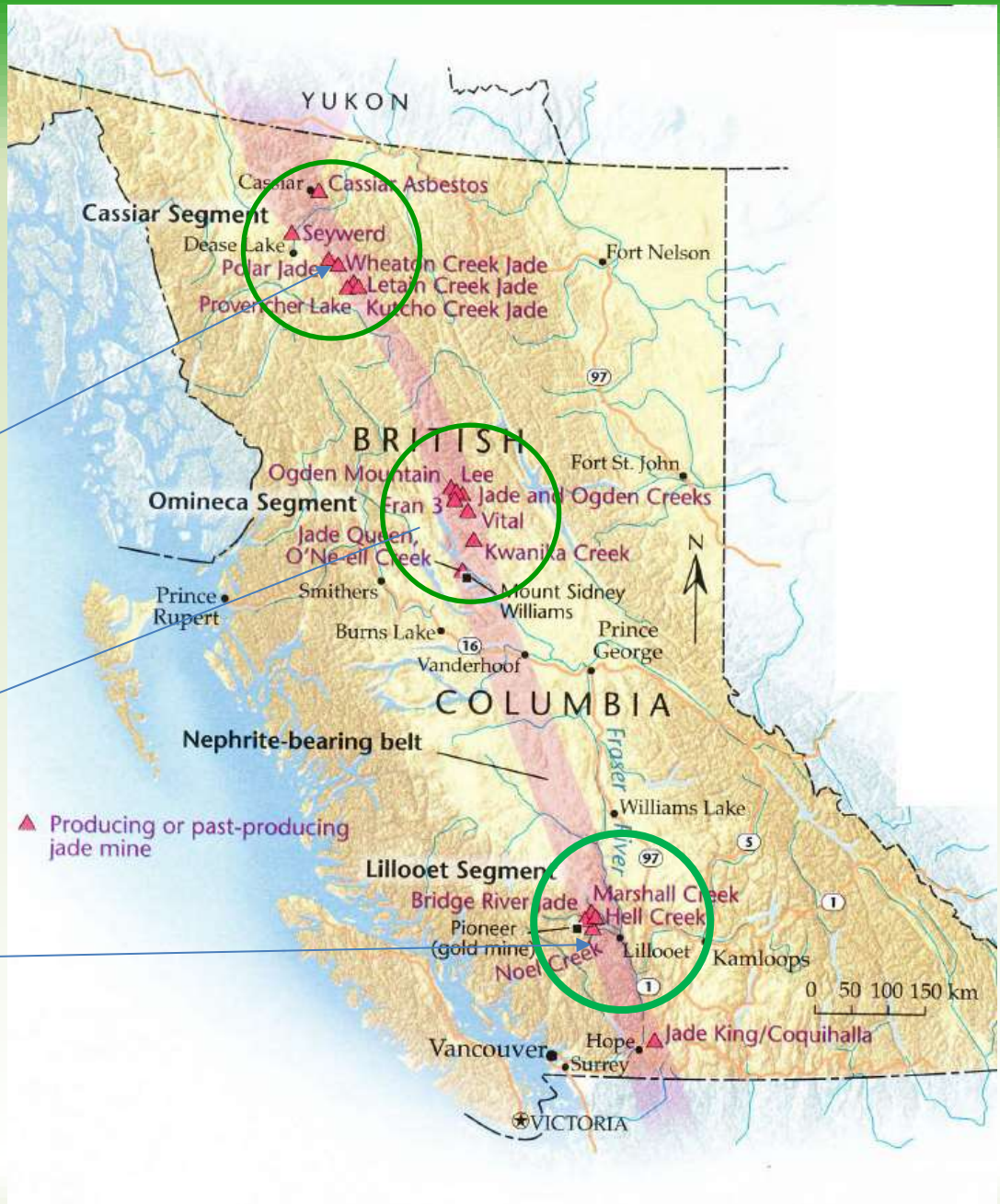


MAP OF BC AND JADE DEPOSITS

Dease lake area

Omineca area

Fraser River area



ORIGIN OF JADE

Serpentine bodies probably originate as "Ophiolites) subducted then emplaced along major tectonic faults. Serpentine and wall rock then altered by hot solutions

TWO TYPES OF NEPHRITE FORMATION

- "D" TYPE (DOLOMITIC SOURCE)
 - Lighter colors to white
- "S" TYPE: (SERPENTINE + Host Rock)
(Metasediments, Intrusives etc.)
 - Darker colors, green to Black

ALTERATION AND SHEARING Along major tectonic Faults

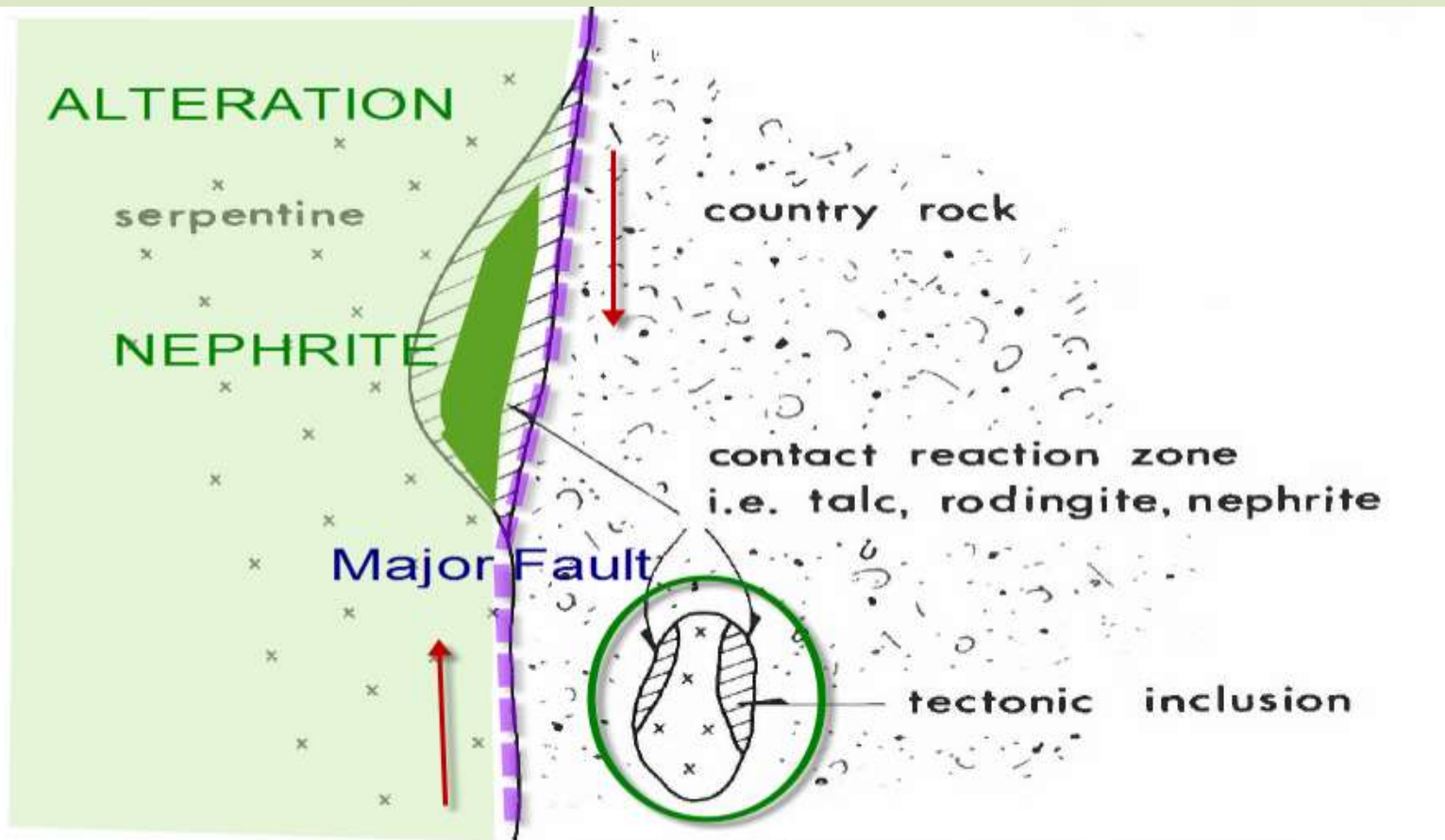
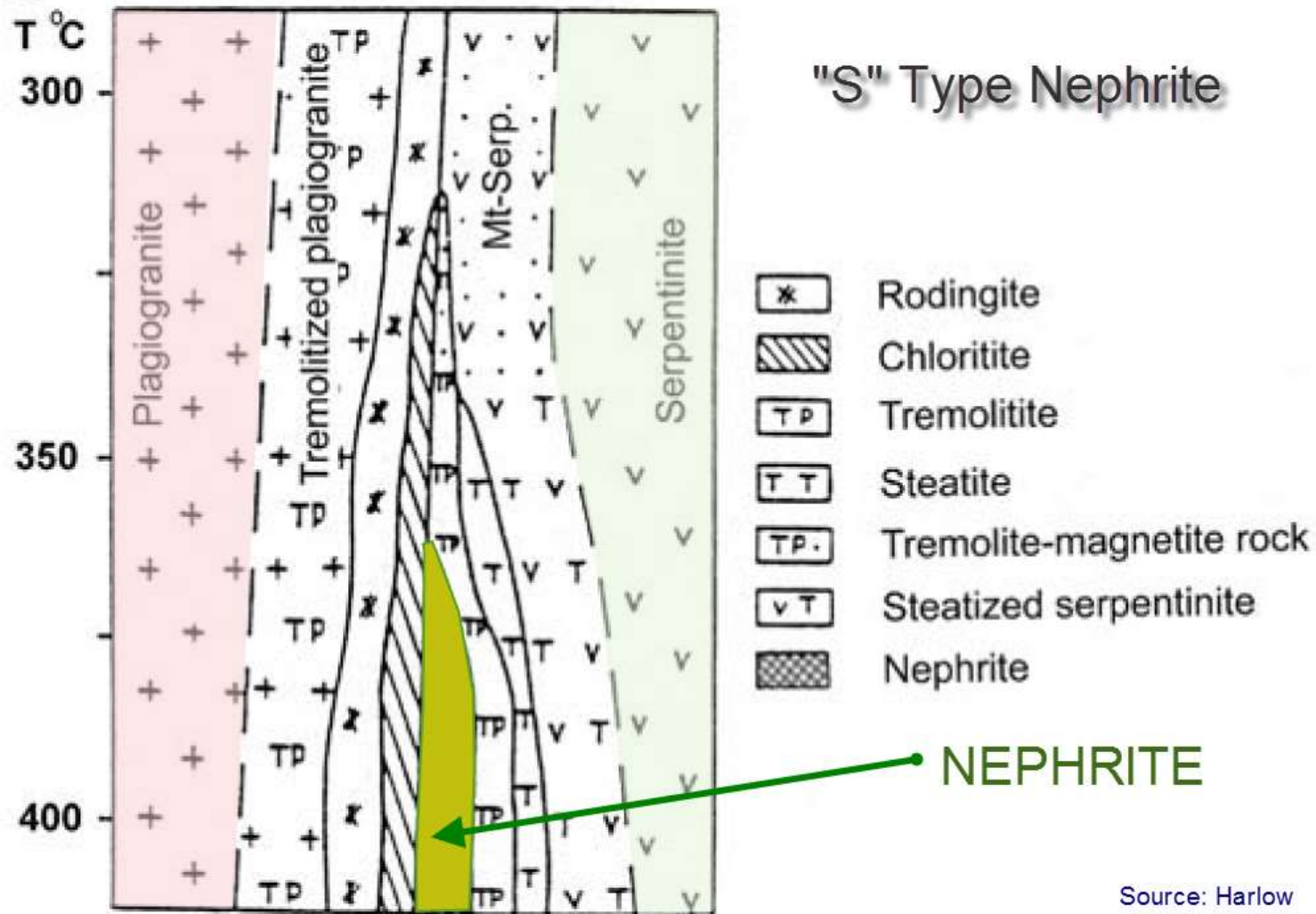
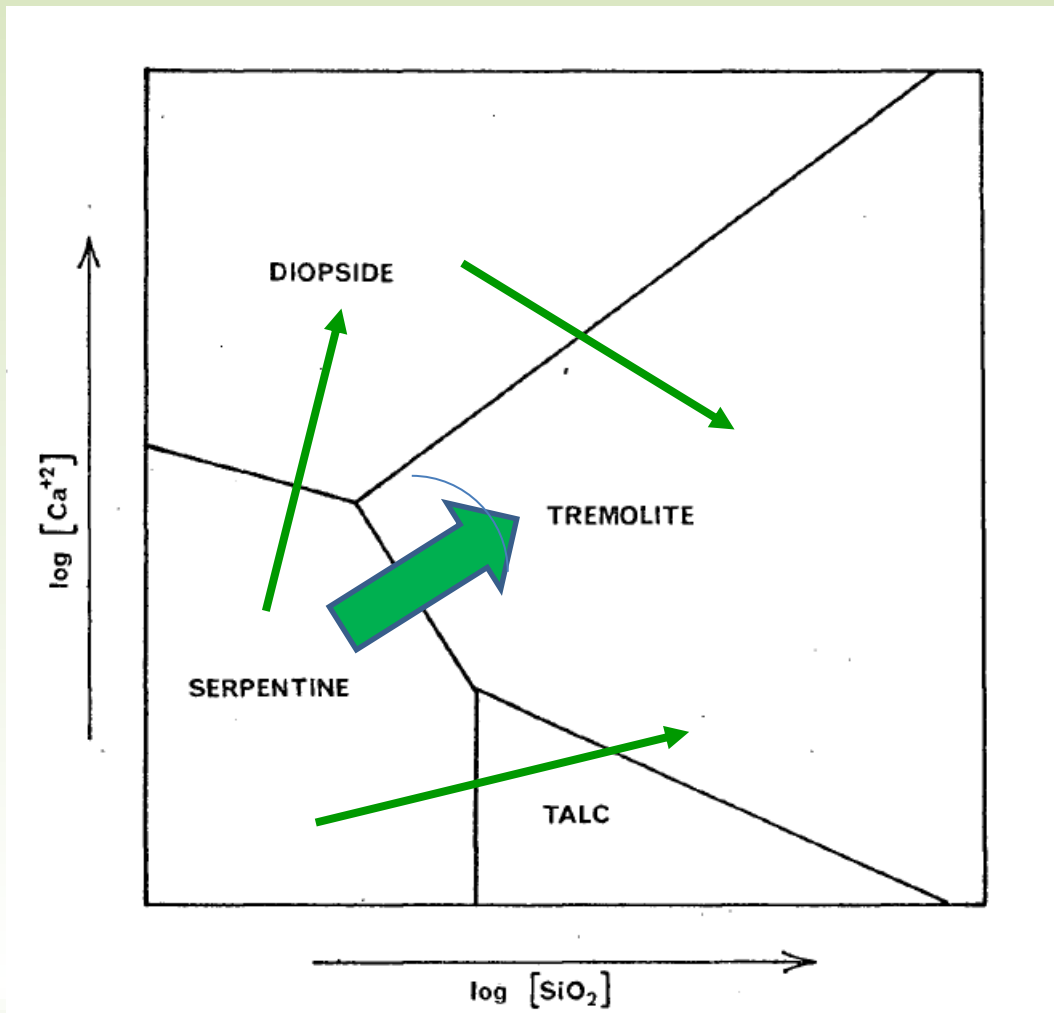


Figure 5. Development of contact reaction zones.

TYPICAL BC JADE DEPOSITS



ADDITION OF CALCIUM AND SILICA



FRASER RIVER AND COQUIHALLA

First source of Nephrite in BC

Placer jade cobbles and boulders

Several sources along Fraser

Ultramafic bodies along Fraser Fault

Coquihalla, Lillooet, areas

Occasional jade implements found today

Potential – Harrison Lake, Hope, Bralorne

Southern BC



- New discovery 2017 Jones Creek (Abraham Ruben)

FINDING JADE

1. Geology maps
2. Serpentine Belts
3. Stream Floats
4. Diligent Prospecting
5. Magnetometer
surveying
6. Packsack Drills
7. Diamond saws
8. Diligence and Luck !!

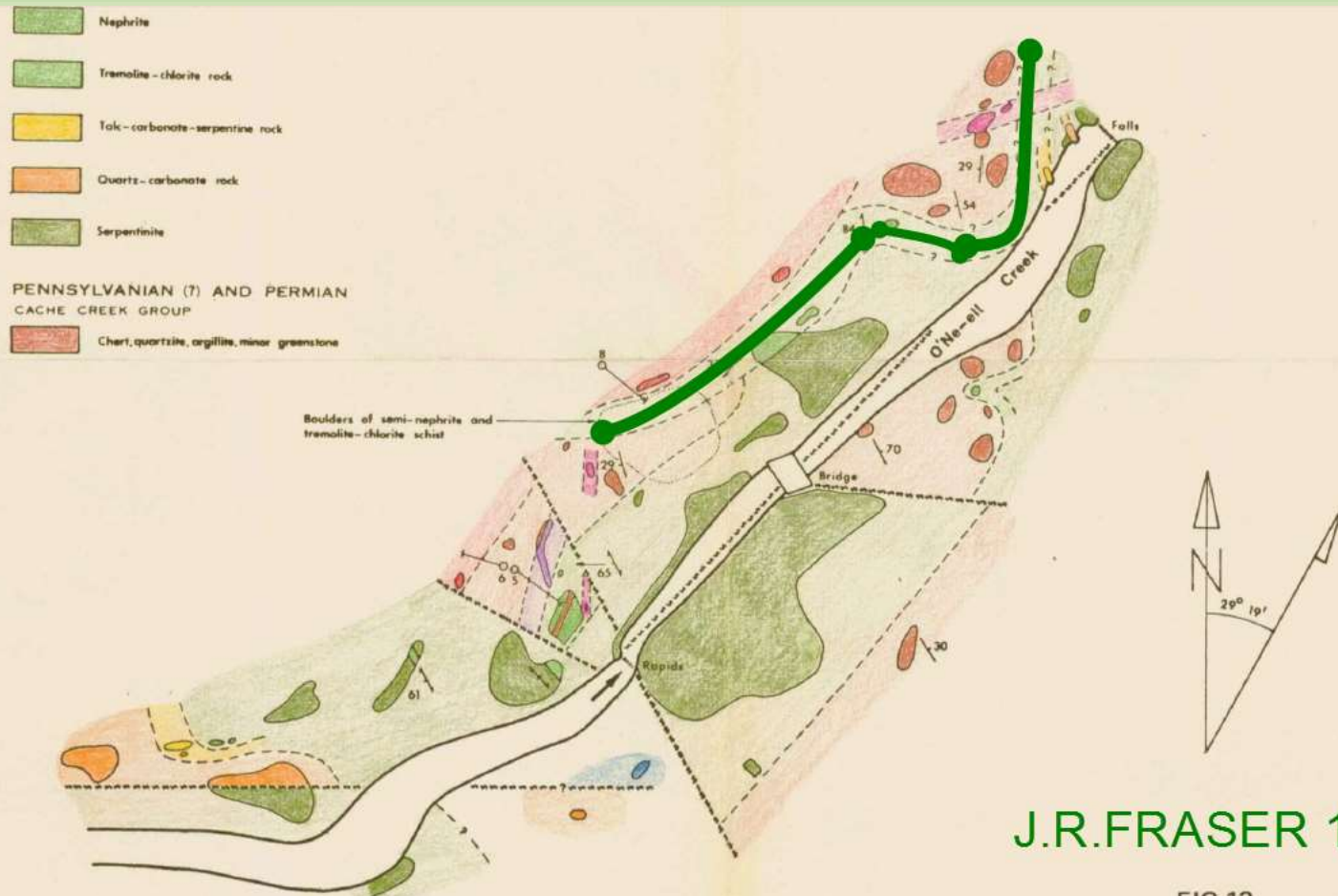
JADE QUEEN MINES LTD. 1968

- O'Ne-ell Creek
- Northwest of Fort St. James. Middle River
- Jade was found in 1968
- by the late Win Robertson (The Jade Queen)
- Limited Production (Mike Beley – Manex Mining 1968-1969, 35 tons by helicopter
- Athabasca Columbia Resources
- Later owned by Jim Thomas/Lorne Warren
- In 1995, Global Metals Ltd. drilled 29 shallow holes
- Now owned by Aimin Liao, John Bakus and others



Picture from Leaming

JOHN FRASERS MAP



J.R.FRASER 1972

FIG.12.
GEOLOGY
O'NE-ELL CREEK NEPHRITE
DEPOSIT
O'NE-ELL CREEK, BRITISH COLUMBIA

DIAMOND SAW AT O'NE-ELL CREEK



J.R. FRASER, 1972

OGDEN MOUNTAIN B.C.

Discovered 1967 by Stan Porayko and Wm, Larry Owen

North Side explored by Larry Barr (Far North Jade) 1971

Developed to production 1972-74

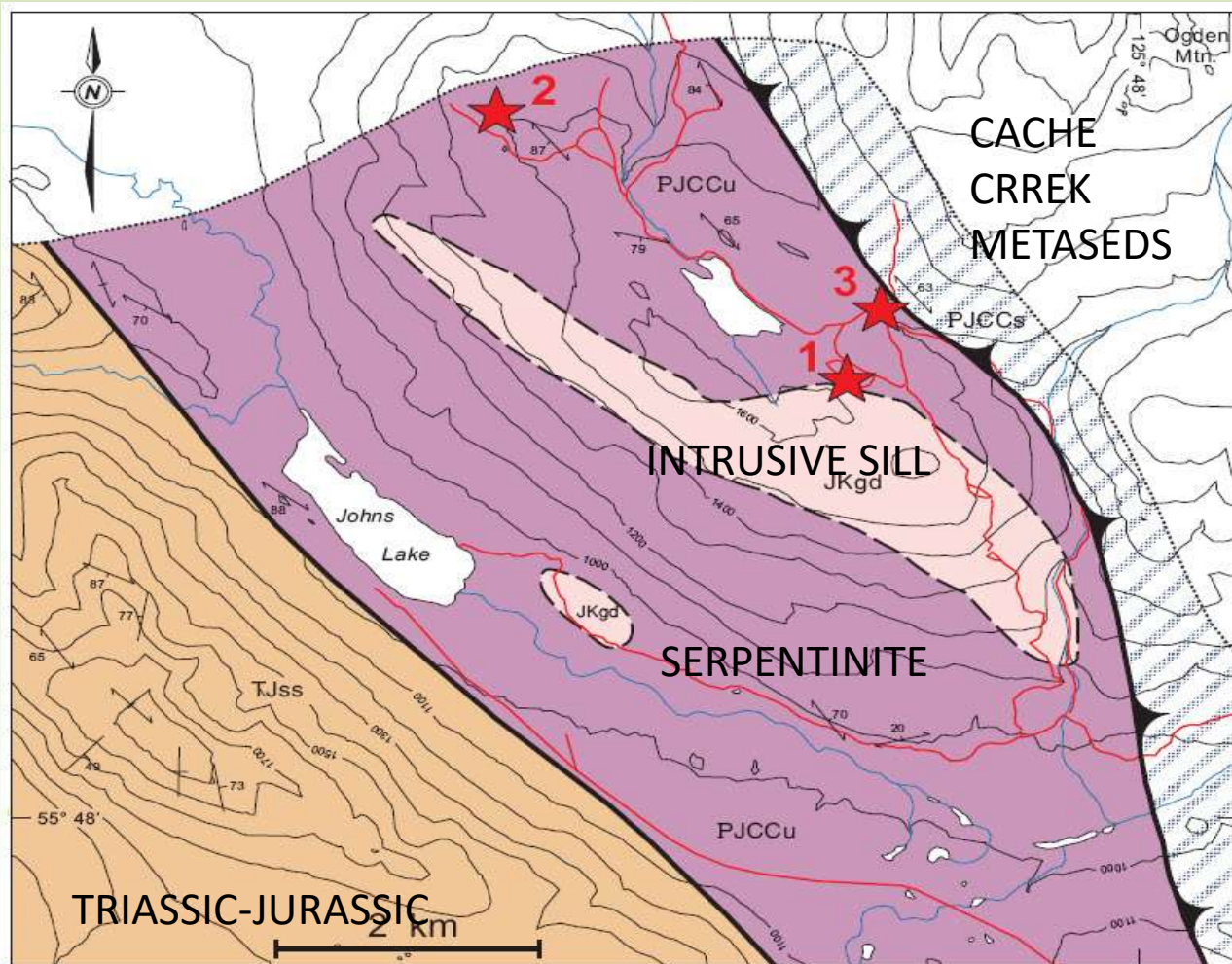
Several hundred tons production

Some top quality !!

Considerable (cull/industrial) jade left

Lots of Exploration potential

OGDEN MOUNTAIN



Source: Schiarizza, et al., 1997.



Fall River. A difficult crossing !! Photo by Makepeace

HOW NOT TO STAKE A JADE CLAIM

Ogden mountain 1971



THE ORIGINAL DISCOVERY

JADE CAMP AND ORIGINAL PIT



MAGNETOMETER SURVEYS

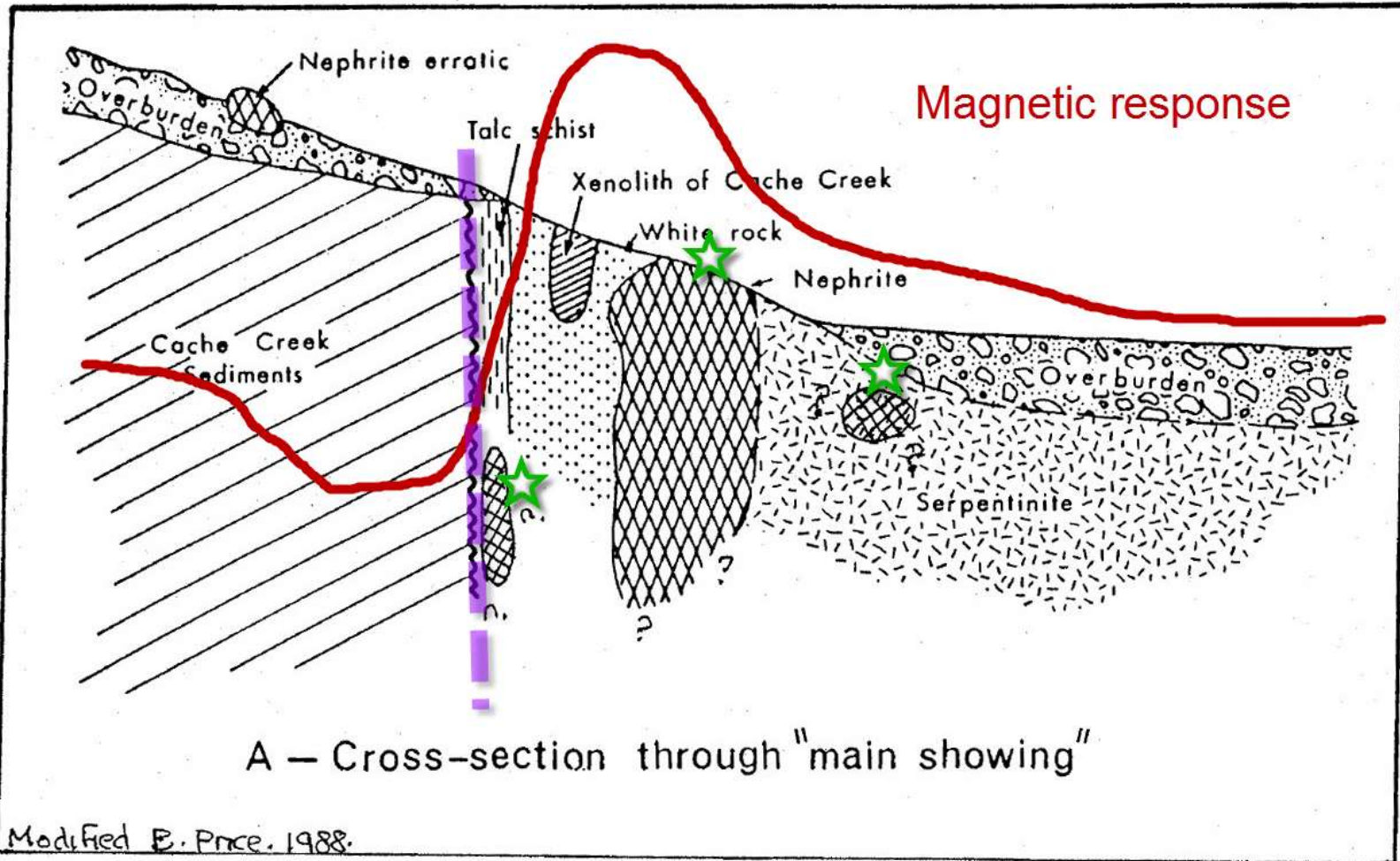


Mt. Ogden 1974

LARRY BARR 1972 WITH “X-RAY” DRILL



Magnetic Signatures



FROM: Jade In Canada, S.F. Leaming, 1978.



OGDEN MOUNTAIN JADE CAMP 2015

2ND JADE SITE FOUND 1972



GRANODIORITE SILL OVERLIES SERPENTINITE

DIAMOND SAWS



Serious equipment



Lower Quality jade stockpile 2015



MY 1972 MAP OF OGDEN MOUNTAIN



OGDEN MOUNTAIN 2015

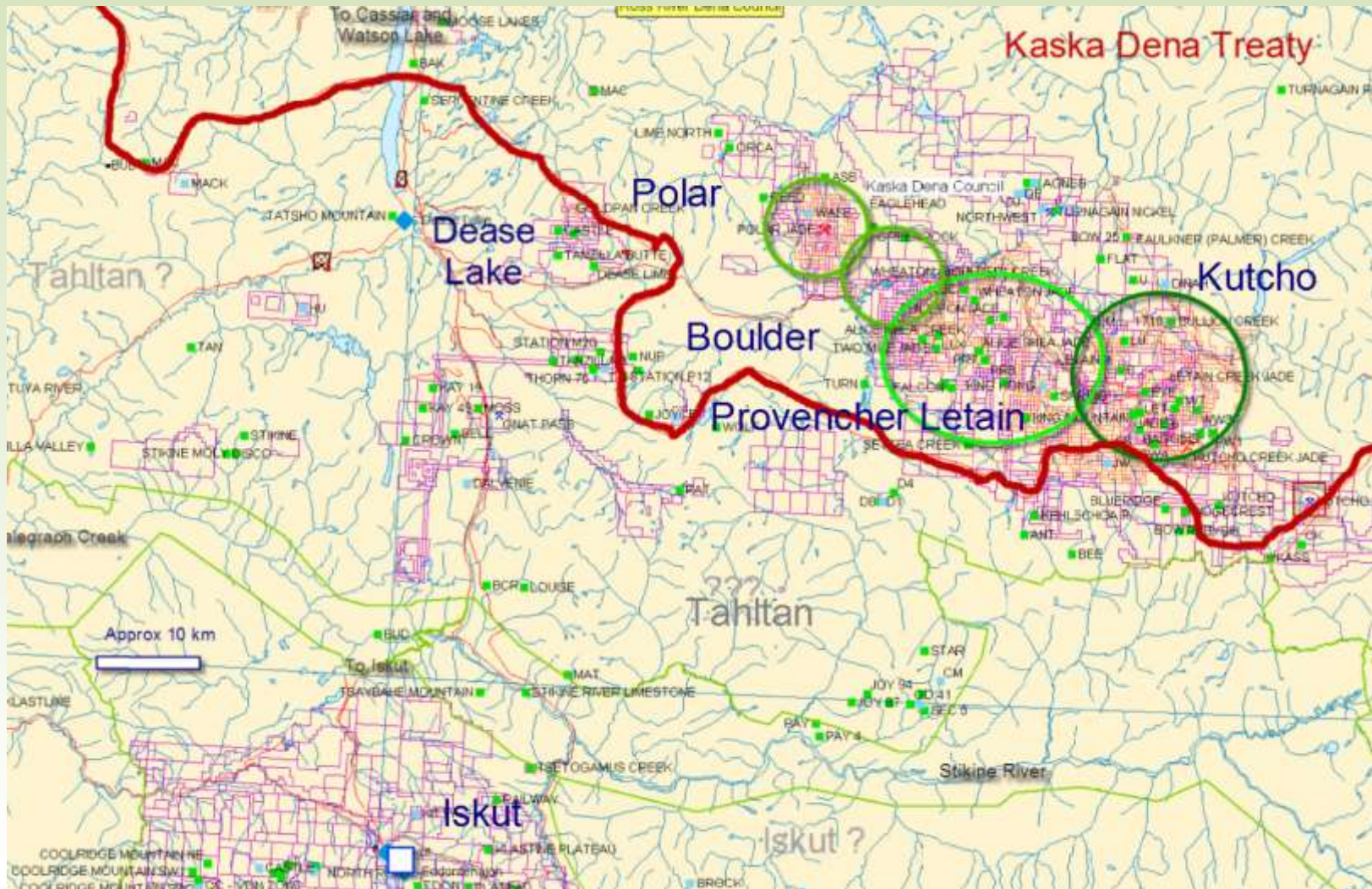


Kirk Makepeace with Typical Jade outcrop ready to drill or saw. Serpentine on both sides

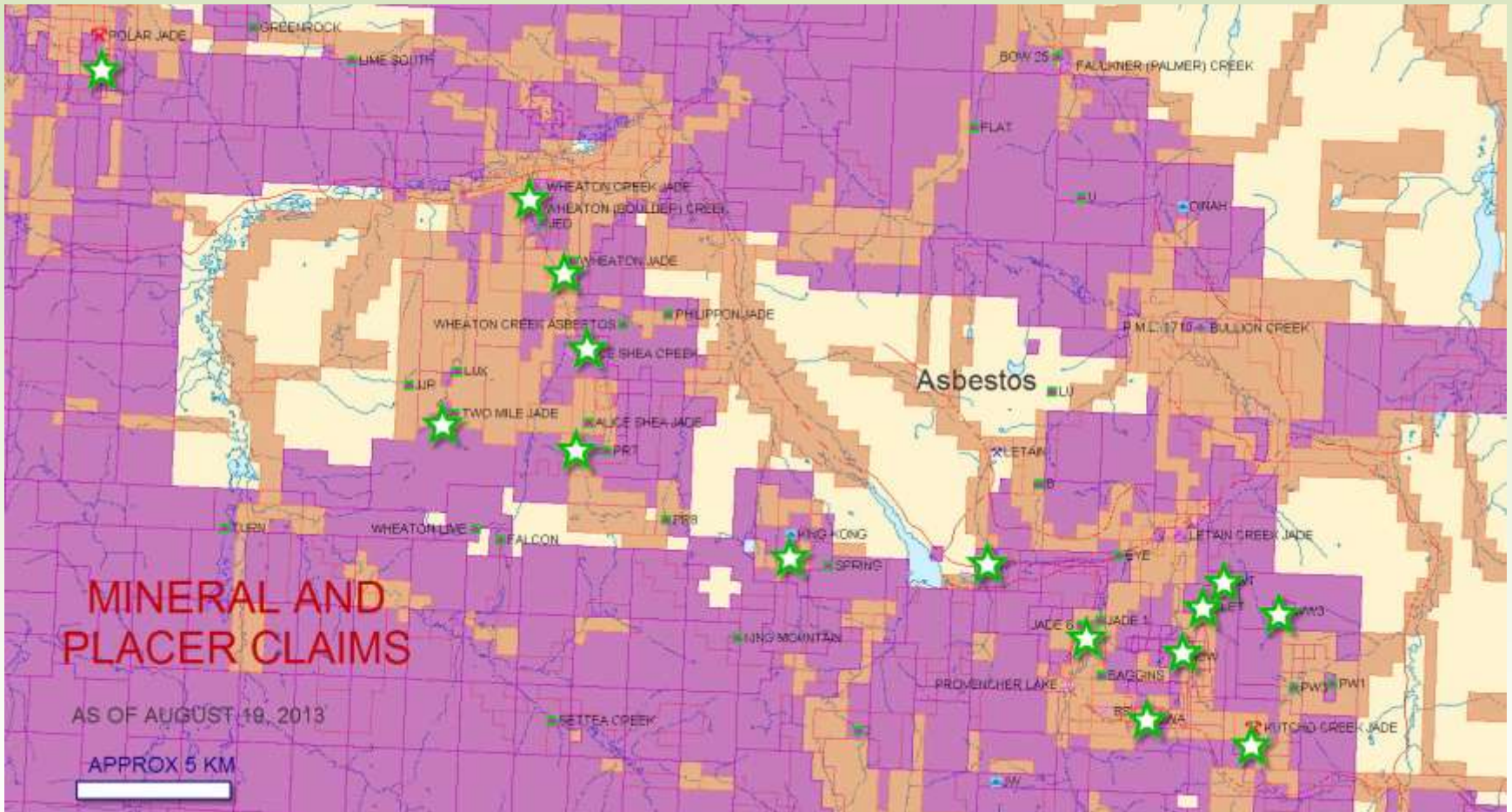
Provencher Lake 1974-76

- In Initial prospecting, over 600 boulders were mapped in 2 days. Glacially rafted and deposited near source
- Then painted with letters and numbers
- Then systematically drilled with handheld packsack drills. Probably >1500 boulders drilled (\$60/ft)
- Larger boulders drilled and split with steel wedges
- Eyebolts placed and Rebar and Flags (snow)
- Dragged out to Dease Lake by cat in winter
- Inevitably some boulders “High Graded” (stolen)

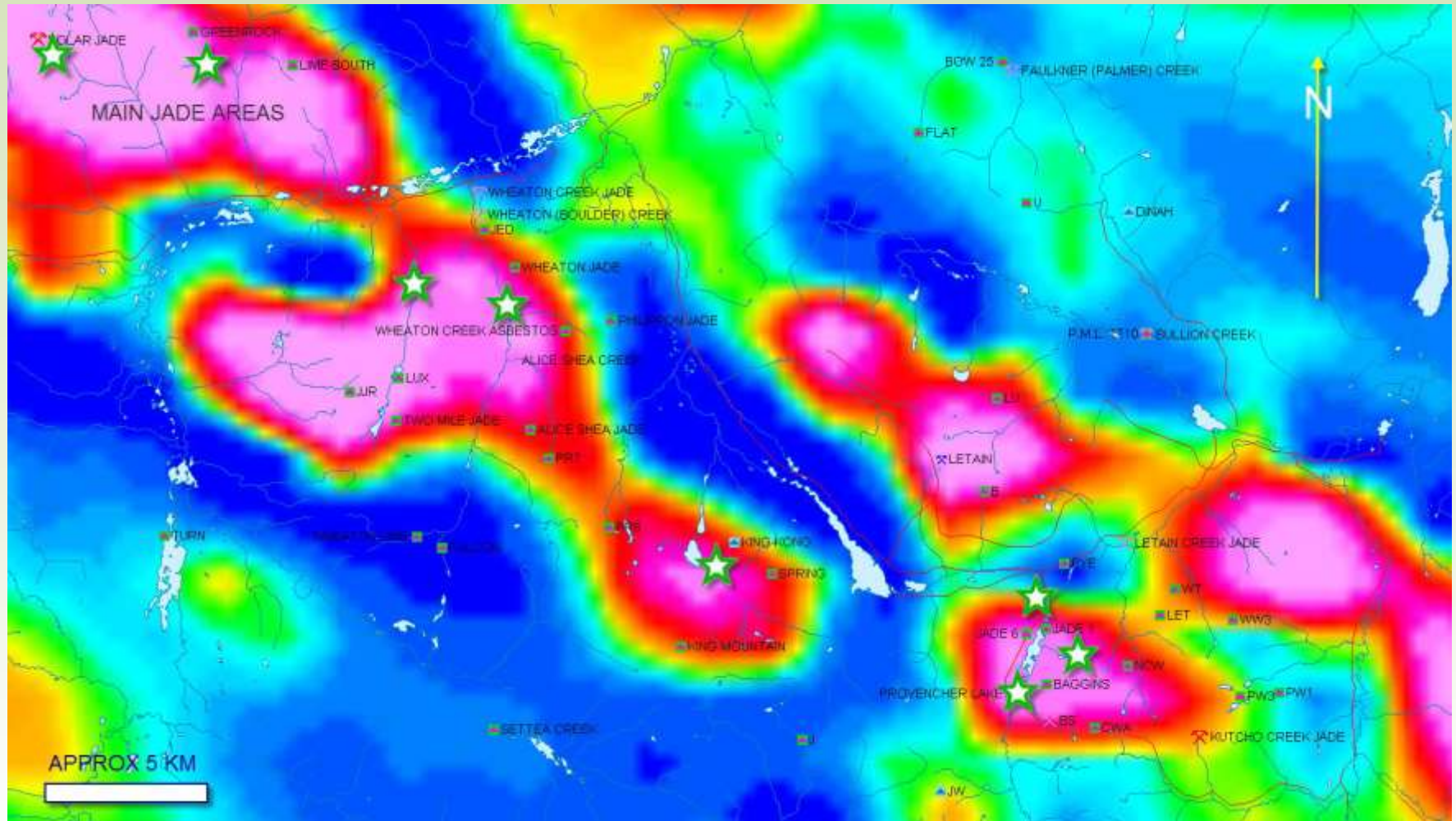
DEASE LAKE AREA CLAIMS



Polar-Kutcho-Provencher 2017



Magnetic anomalies



SAME AREA AS PREVIOUS MAP – NEPHRITE WITH MAGNETIC (SERPENTINE) BODIES

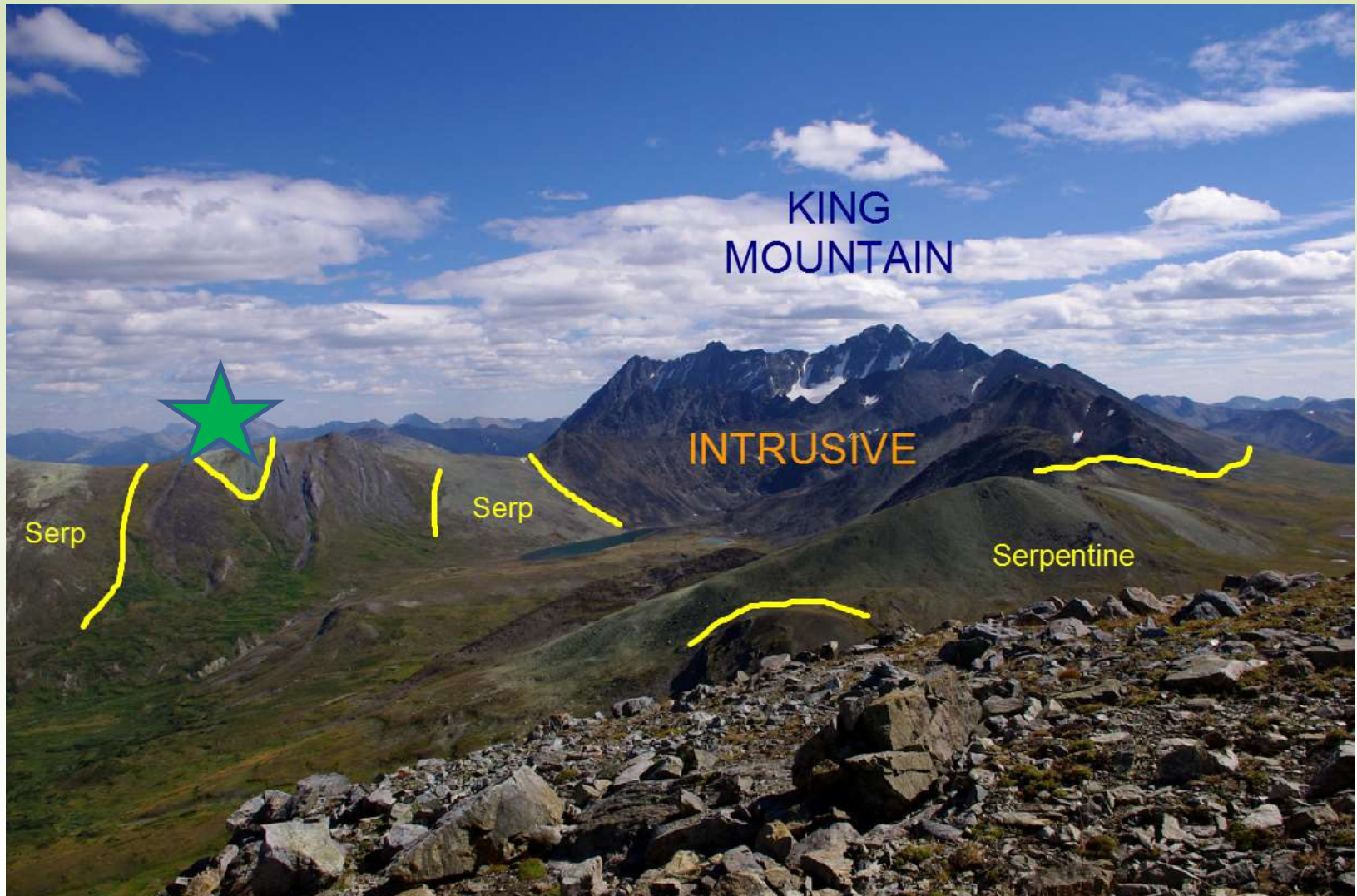
1974 Drilling boulders



DRILL CORE



KING MOUNTAIN



Glacially polished boulder



POLAR JADE, DEASE LAKE BC

An 18 tonne boulder of gem-quality jade.
Half was used to carve a 9 ft tall jade Buddha



Green Mountain Jade Camp

Kutcho Creek Airstrip



YUKON TERRITORY

Robert Campbell Highway north of Watson Lake -
West of Mile 84

Jade found by Roy Sowden 1973? (Jade Tooth)

Explored by Larry Barr 1974

Outcrops of nephrite in serpentinite

Good to moderate quality

Helicopter access only

Karl Ebner mined a 31.5 ton boulder

Then owned by Max Rosenquist.

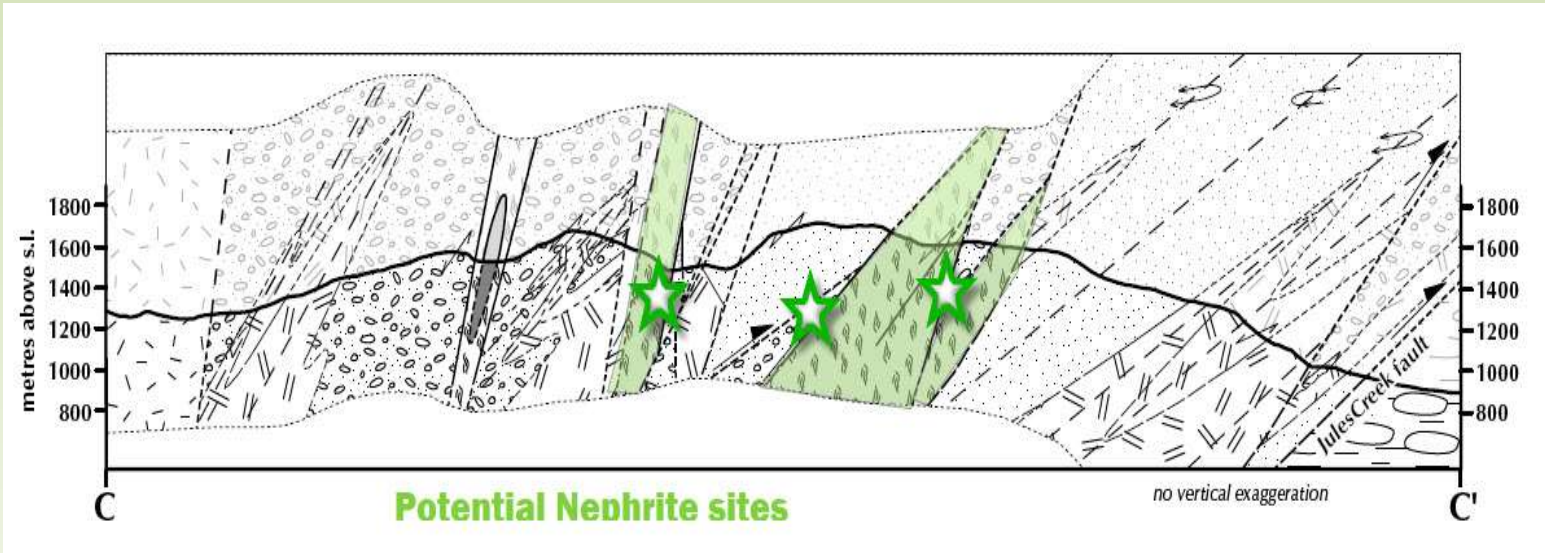
Now Owned by Roger Krichbaum, Colorado

Yukon Jade

FRANCES LAKE YT

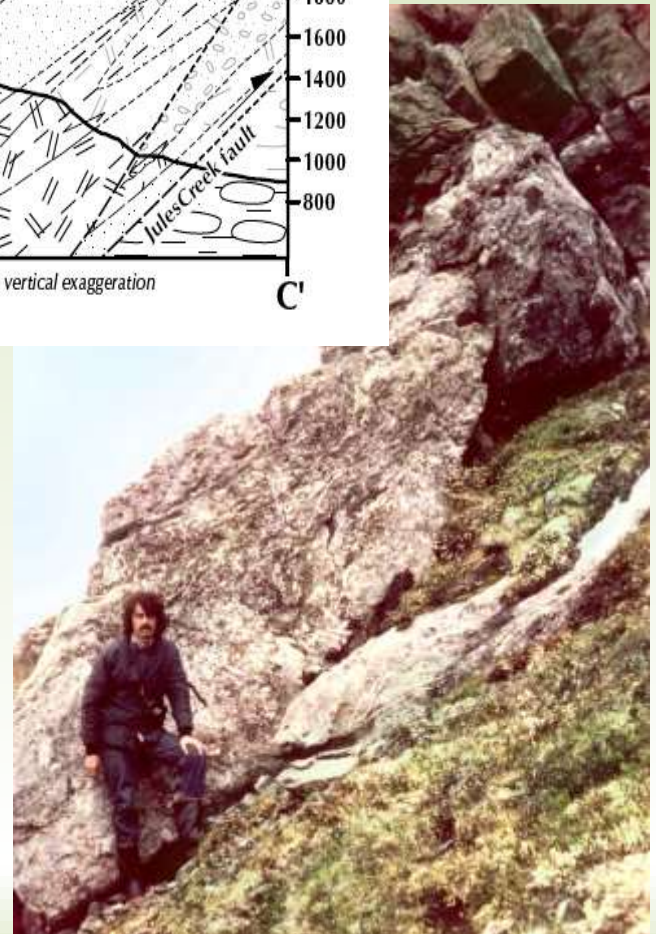


ARCTIC JADE STRUCTURE



Nephrite in Serpentine in fault zones

LARRY BARR 1974



Yukon Jade



LILLOOET B.C.

Fraser River

Hell Creek

Marshall Creek

Exploration continues

Earl and Bill Cook

Jim Macdonald

Dave Deering

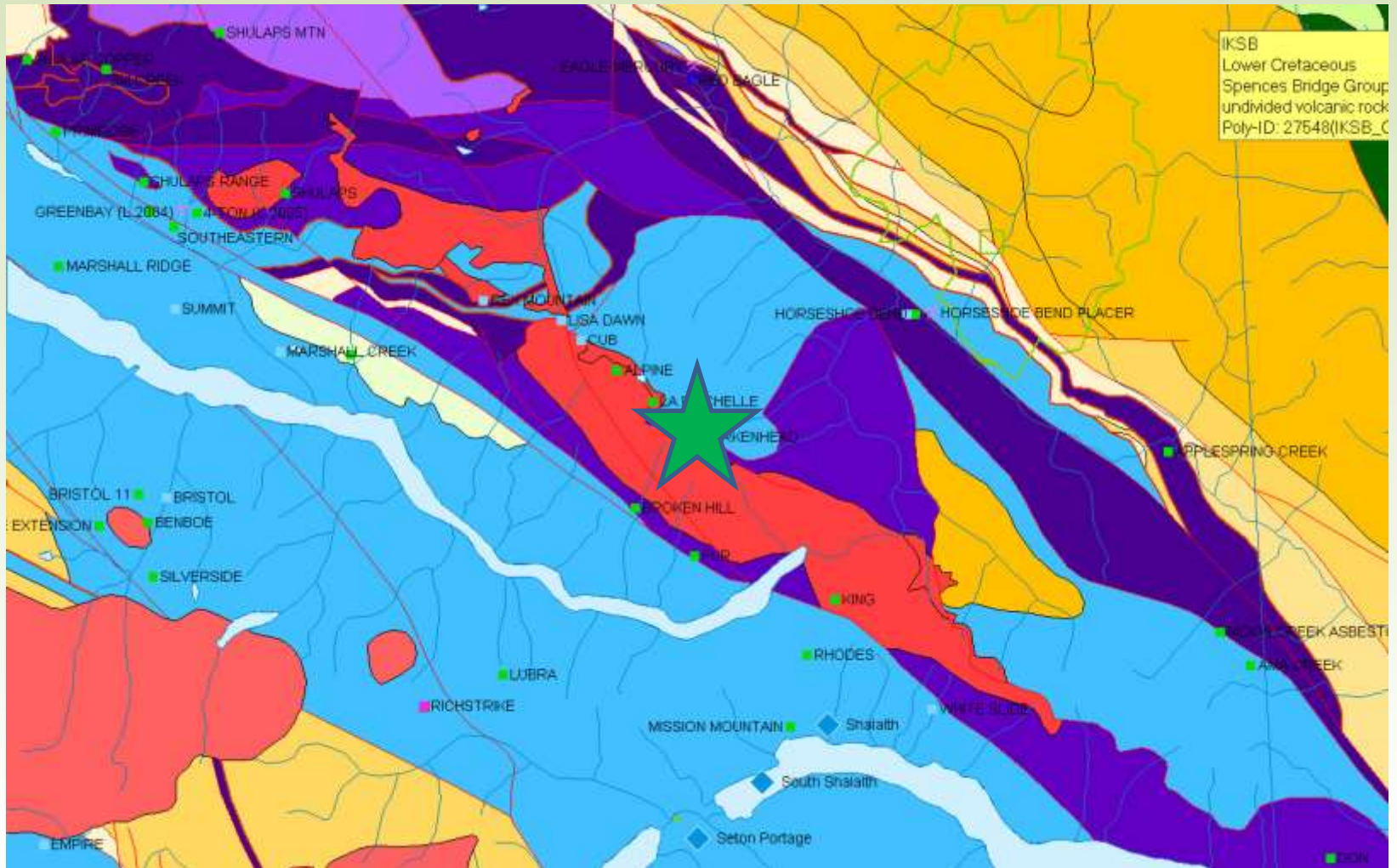
George Vanderwolf

https://www.youtube.com/watch?v=tD_dwl3gNIA

Don Ingram with jade slabs on Main
Street



HELL CREEK – SHULAPS RANGE



HELL CREEK 2018

VIEW FROM THE TOP (7200 FT) AND DRILLER DAVE DEERING



Lillooet Area



ALTERATION AND GOOD QUALITY
NEPHRITE



Jade Prospectors and Supporters

Wm Larry Owen

Stan Porayko

Larry Barr

Joe Bell

Win Robertson

Clancy Hubble

John Schussler

Roy Sowden

Kirk Makepeace

Jim Macdonald

Andy Jensen

Paul Bialkoski

Gerry Davis

Hal Komish

Ben Seyward

Lorne Warren

Jim Thomas

Cecil McEwen

Jerry Skopke

Howard Lo

Tony Ritter

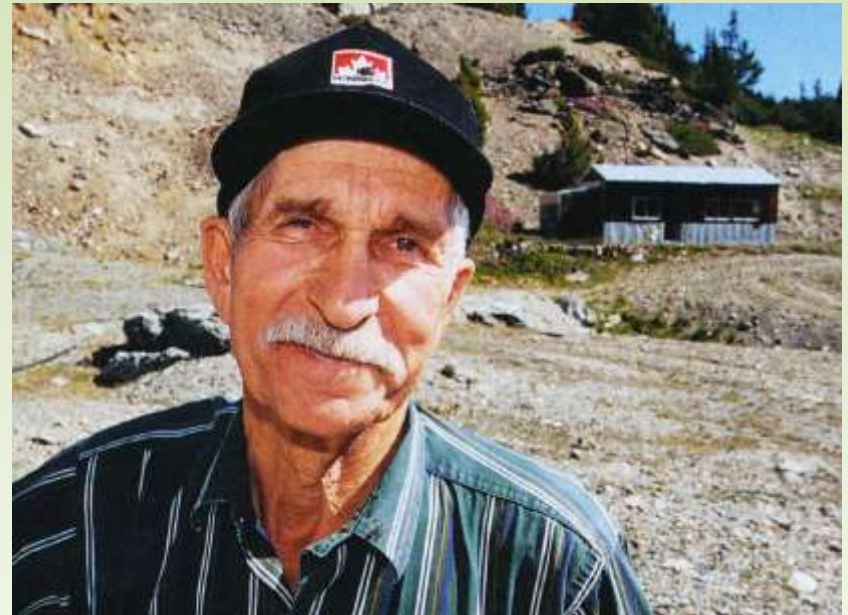
Bob Yorke-Hardy

Al Homenuke

Ed Osterlund

Harry Street

George Vanderwolf



Ron Purvis

Lanny Ream

JP Jutras

Shane Ebert

Guil Brett

Many others

DR. STAN LEAMING

- Geologist with Geological Survey of Canada
- Canadas foremost Jade expert
- Retired and 101 yrs old, Kelowna BC
- Jade in Canada and Jade Fever



Stan pauses for a picture on the south side of King Mountain near Provencher Lake, B.C., during the mapping of ultramafic belts in the Dease Lake–Cassiar area in the early 1970s. The summer days are long here, but the season itself is short.

PROVENCHER LAKE 1974

Conrad Provencher – Cassiar
Andy Jensen
Paul Biakoski
John Kubiak
Al Homenuke
Bob Yorke-Hardy
Mohawk Oil
Larry Barr –
Howard Lo
Nephro Jade Canada
Tony Ritter
Ernie HATZL
Cassiar Jade Contracting
Many others



Paul Bialkoski and Howard Lo.

THE LATE STAN PORAYKO



A billionaire in Zimbabwe Dollars

PROVENCHER LAKE

Cassiar Jade Contracting – Ernie Hatzl and Tony Ritter



Cassiar Jade Contracting founder and partner Tony Ritter with large chunks of B.C. jade | CHUNG CHOW

KUTCHO AREA



Kirk Makepeace and daughter Nikki (Gemologist)

JADE CITY

“Jade Fever”

Steve Simonovic and daughter Claudia Bunce



LETAIN LK. BUNCE MINE SITE



Reclamation Bond \$\$\$\$

Here's your Hat



Other Nephrite Sources

- Washington, Alaska
- Wyoming, California
- New Zealand, Cowell, South Australia
- Korea
- Russia
- Aceh Province Indonesia
- Pakistan
- Macedonia
- Newfoundland

Washington State

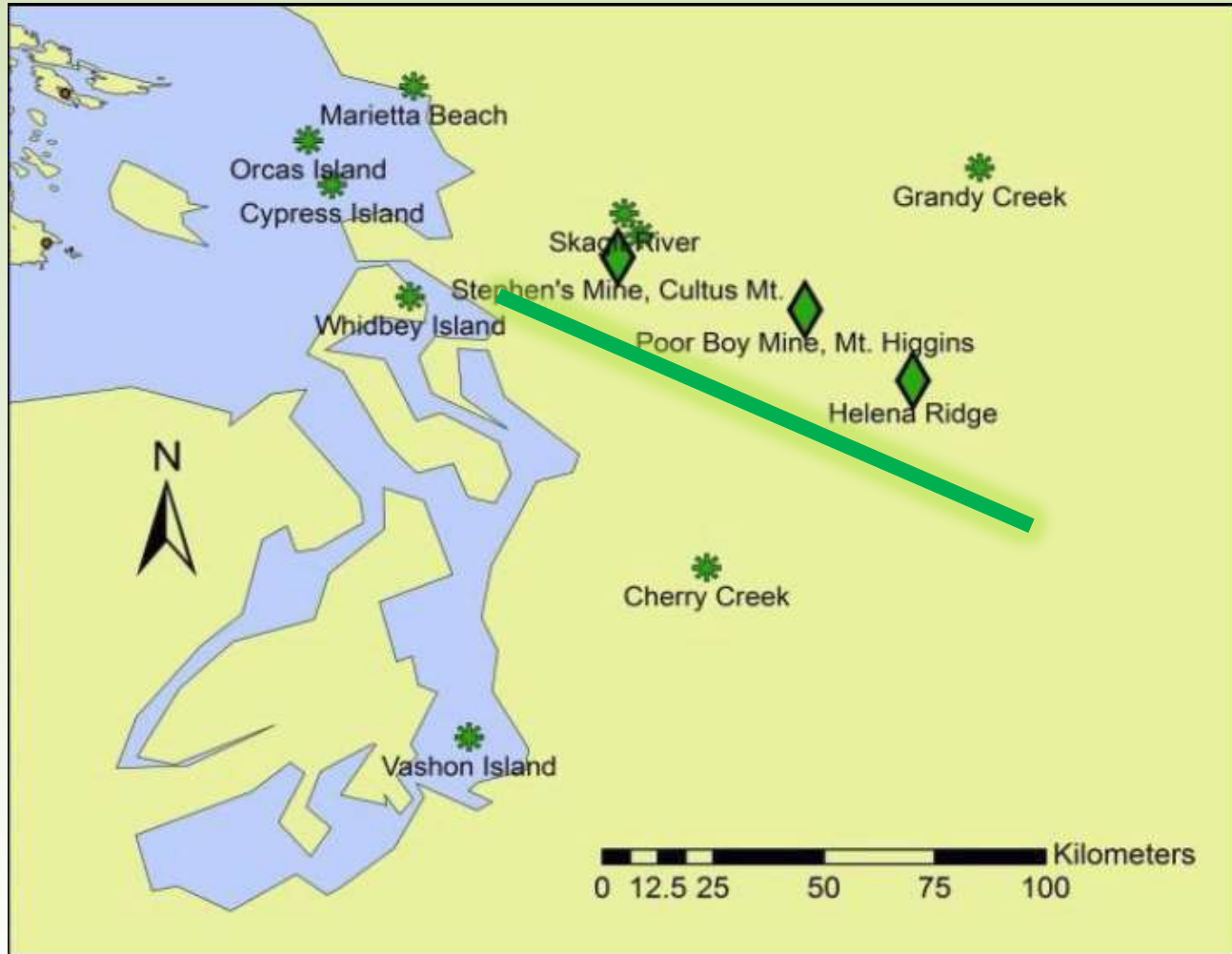


Figure 2-8. Nephrite sources in Washington

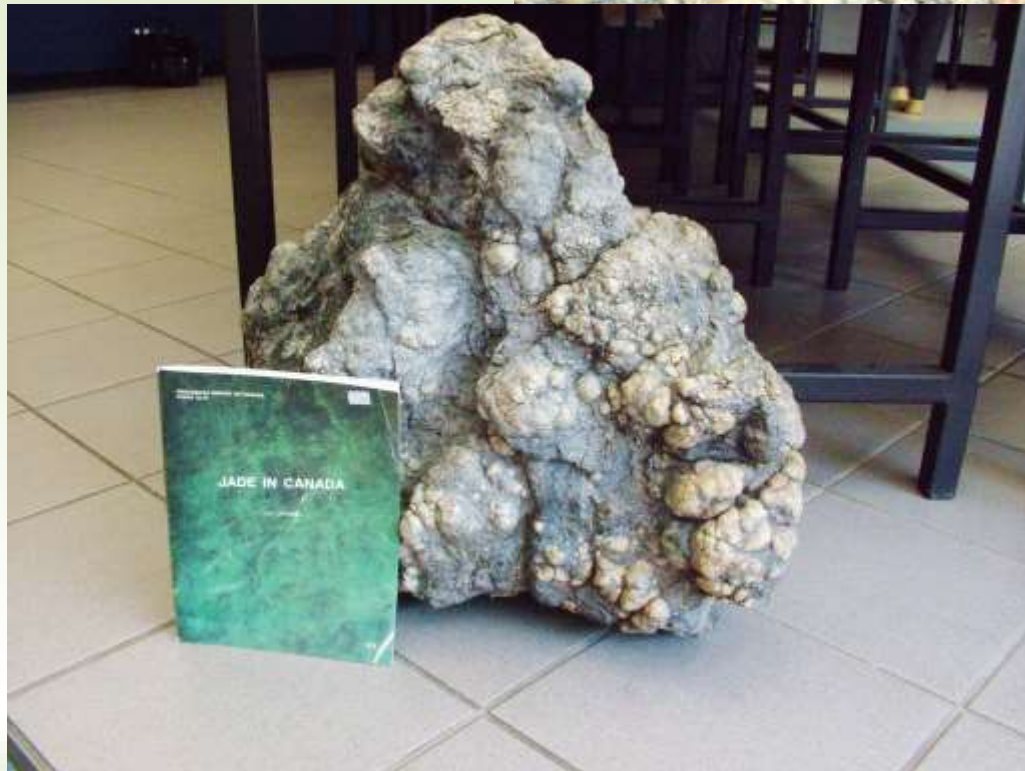
SIBERIAN JADE



Generally lighter green

NEWFOUNDLAND

Found by BC prospector Jim Macdonald 1970's Botryoidal jade Milan Arm area.



Newfoundland bot jade



NEW ZEALAND



NZ WAR CLUBS



OUCH !!!!

ACEH, INDONESIA



MACEDONIA

Frog Skin Texture



NEPHRITE QUALITY

A



NEPHRITE COMPARISON PHOTO

B

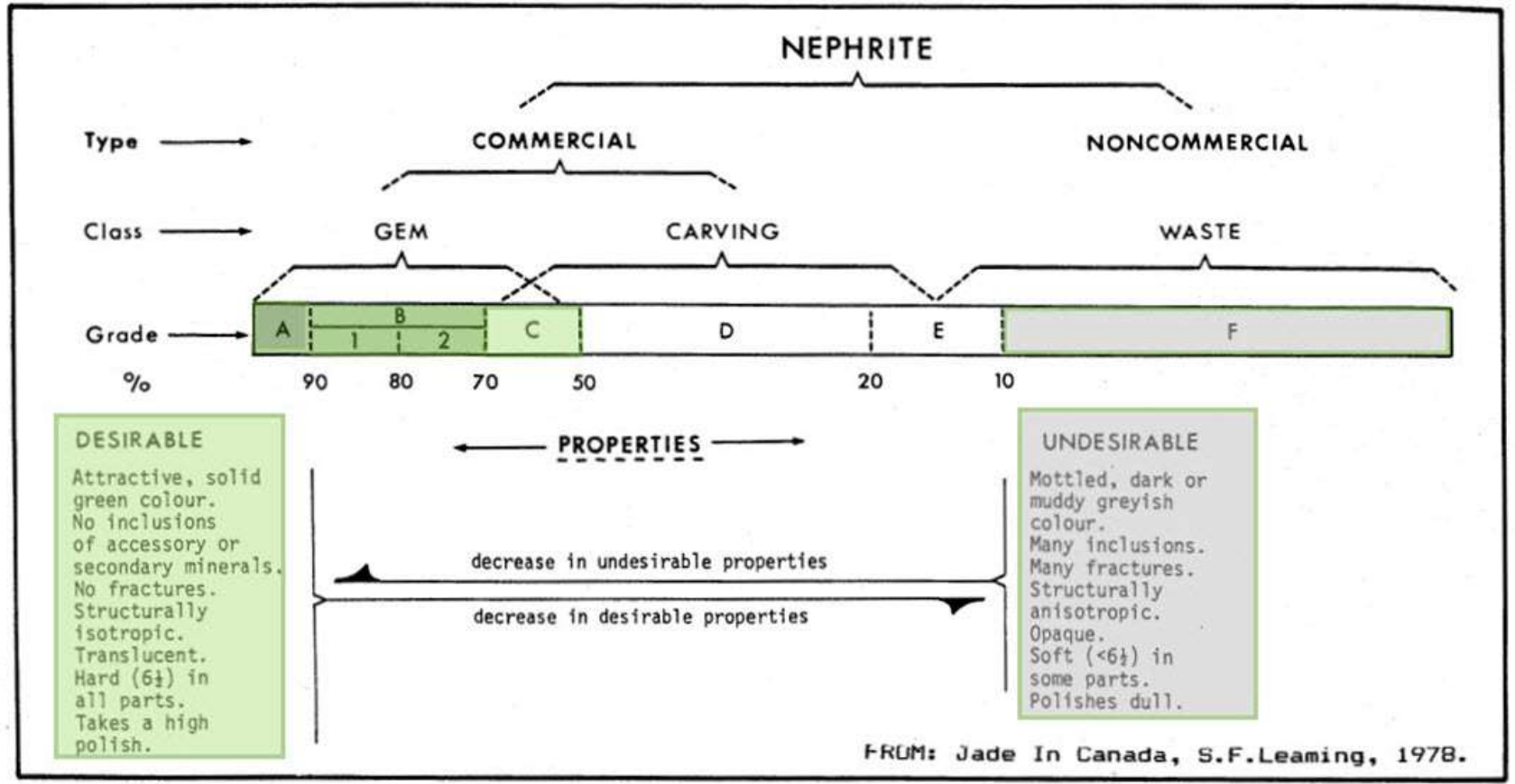
C

D

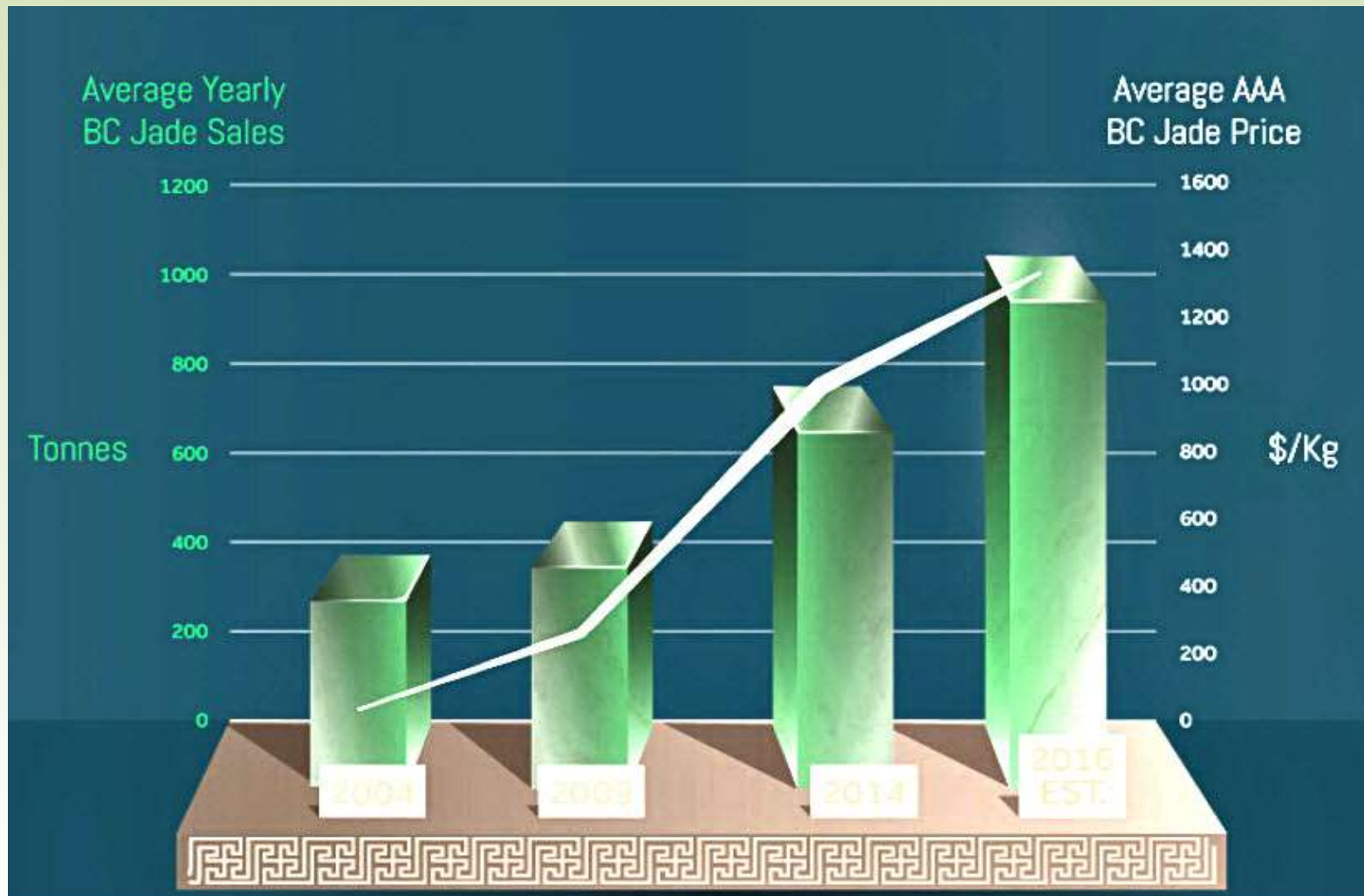


Stan Leaming Chart

NEPHRITE GRADE CHART



JADE PRICES



Deborah Wilson – Carver

<http://www.deborahwilson.bc.ca/.jpg>

Many other excellent jade carvers in BC



INTERNATIONAL JADE DAY



THE B.C. BEARS



ARCTIC LOON AND EGGS



Charles C Min Hu

THE JADE BUDDHA

POLAR JADE

The Jade Buddha for Universal Peace is the largest Buddha carved from gemstone quality jade in the world. Half of the “Polar Pride” boulder recovered in British Columbia was carved into the famous 4.65-ton “Jade Buddha for Universal Peace.” It was carved in Thailand over a two-year period. It is about 2.5 meters (about 8 feet) tall. Since 2009, the Jade Buddha has been on a tour of more than 15 countries to inspire people to seek peace in their lives.

[Courtesy of Jade West Group.](#)



Jade and Health



- Many dubious claims made about jade and health
- Jade powder in cosmetics (beware of asbestos !!)
- Jade healing palm stones
- Pyramids
- Jade rollers
- Jade Yoni Eggs (I'm not going to go into this 😊)
- Jade elixirs, essential oils fragrances
- Far-Infrared rays" 😞



Misc oddities

JADE ROLLER

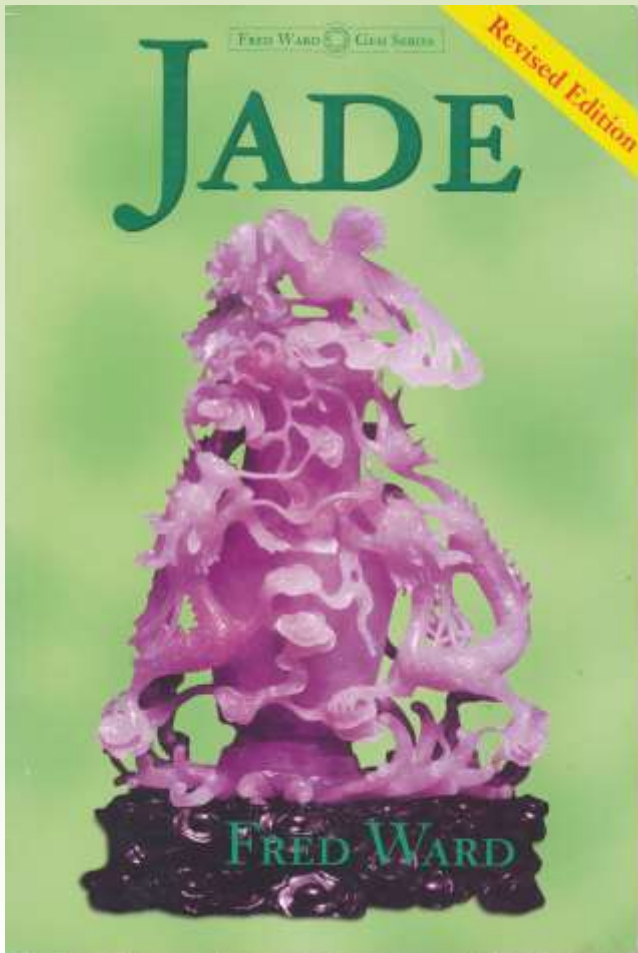


Heavy Duty Version

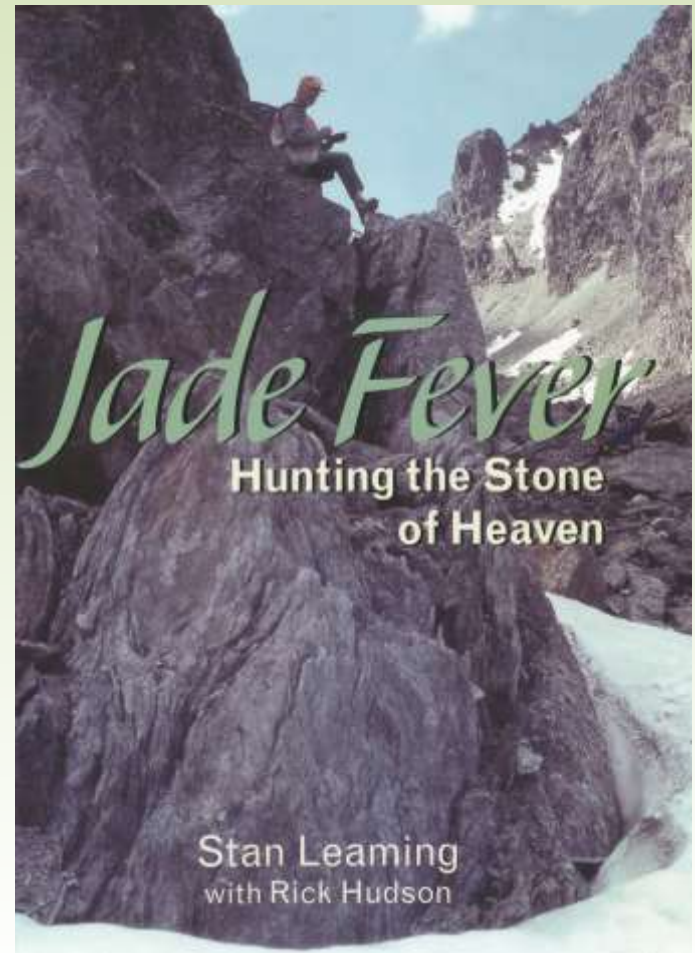
Jade Public Companies

- Pacific Bay Minerals (TSXV- PBM)
 - Cassiar and Dease Lake area
- Electra Stone Ltd. (TSXV – ELT)
 - Limited production from Quartz Creek, Kutcho area
 - Cease Traded 2018 Failure to file
- Jade Leader Corp. (TSXV - JADE)
 - Previously Manson Creek Resources
 - Properties Cariboo and Washington State

JADE BOOKS

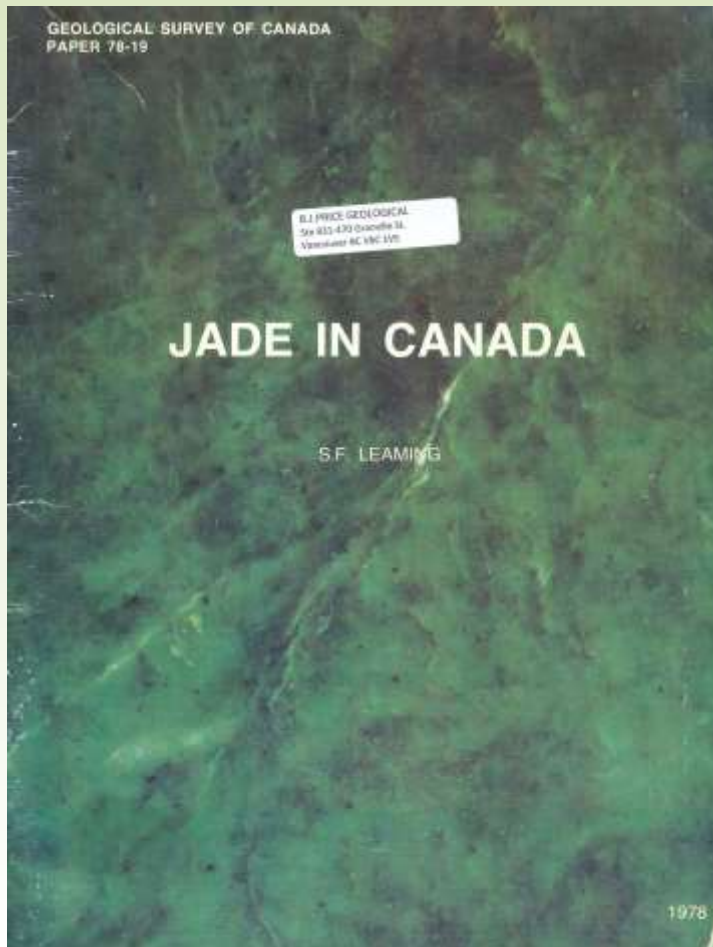


FRED WARD

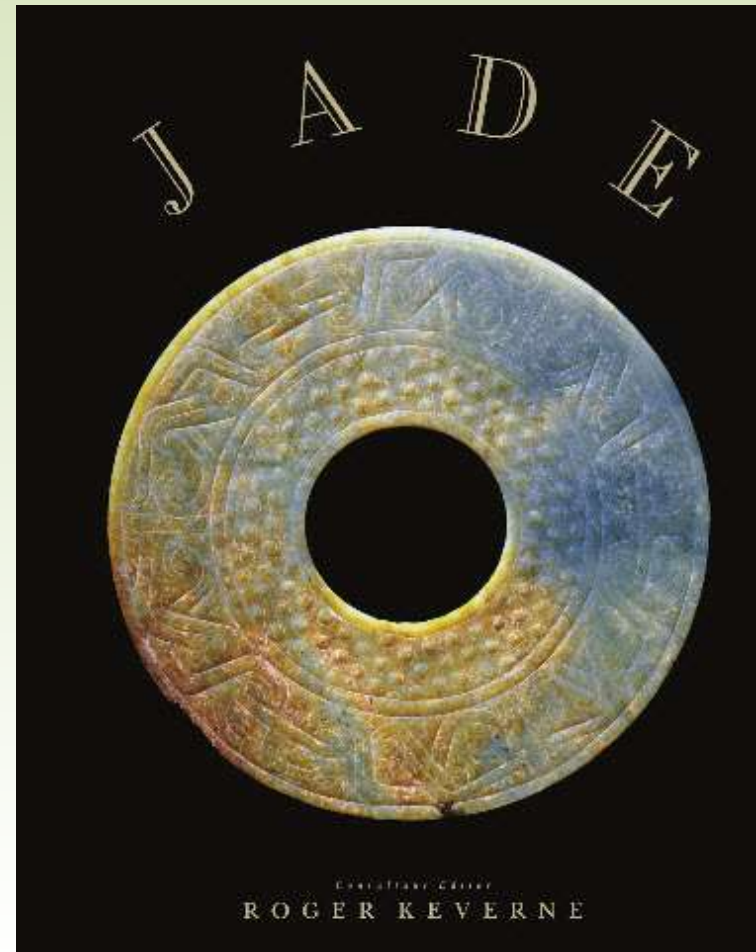


LEAMING AND HUDSON

JADE BOOKS



STAN LEAMING



ROGER KEVERNE

Jade Companies



<http://greenmountainjade.com/>

JADE LEADER CORP.

Jean-Pierre (J.P.) Jutras, B.Sc Hons, Geology, P Geol

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TSXv: JADE

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ACKNOWLEDGEMENTS AND REFERENCES

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- Kirk Makepeace
- Rick Hudson
- JP Jutras
- Dave Deering
- Dr. Stanley Leaming (retired)
- George Simandl (BCGS)
- The late John Fraser
- Carl Verley

Online sources

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- <http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/InformationCirculars/Documents/IC2015-9.pdf>
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- <http://www.empr.gov.bc.ca/Mining/Geoscience/ARIS/Pages/default.aspx>
- <https://en.wikipedia.org/wiki/Nephrite>
- <https://geology.com/gemstones/jade/>
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- <http://greenmountainjade.com/>
- <http://www.jadeleader.ca>
- <https://www.christies.com/jade/history/the-origin-of-jade-in-china/>
- <http://archpress.lib.sfu.ca/index.php/archpress/catalog/download/20/6/118-1?inline=1>

Jade is the Word

- He walks alone. On hills of till.
- Searching the ground. For it is his will.
- He seeks a rock. That the Creator made.
- Some call it Nephrite. Some call it Jade.
- But with a rap from his hammer. **The “TING” is heard.**
- Only one rock makes that sound.
- **Jade, is the word.**

Thank You “Yu”.



Chinese Symbol “YU” for Jade

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