German Geologist Discovers a Rare Carbonatite Complex in British Columbia

Today, Arctic Star Exploration Corp. made a striking announcement of having discovered a carbonatite complex at its 100% owned CAP Property in British Columbia, Canada.

The company started a maiden drill program in mid-July and one of the holes intersected carbonatite. Assays are pending and expected shortly, potentially confirming the presence of niobium within the carbonatite. Arctic’s consultant, Jody Dahrouge (P.Geo.) of Dahrouge Geological Consulting Ltd., commented in today’s news:

“We are extremely grateful to be part of the group which conceptualized and discovered this hitherto unknown carbonatite-syenite complex. Carbonatite is an extremely rare rock type with only around 550 complexes identified worldwide.

In addition to their rarity, they are also well-known for being the source of production for a plethora of commodities, including being the dominate source for niobium and rare earth elements (REEs). The potential rewards associated with a new discovery such as at CAP cannot be overstated.”

Patrik Schmidt from Weilheim an der Teck went to the Eberhard-Karls University in Tübingen, Germany, where he studied geology. In 2008, he started to work for Dahrouge Geological Consulting Ltd. While currently doing his PhD at the University of Windsor, researching about the high-field strength element (HFSE) behaviour during magmatic and hydrothermal processes in the Eldor Carbonatite, he recently discovered a carbonatite outcrop in a creek bed on the CAP Property, which subsequently was drill tested.
Arctic Star Exploration Corp. staked the CAP Property in 2010 based on a magnetic anomaly from government surveys. The company thought it could be a carbonatite given its size, shape and location within a quite magnetic background of mostly sedimentary rocks. Subsequent work found thin syenite dykes, which they believed to be related to a carbonatite complex.

Back then, these dykes were sampled and contained highly anomalous geochemistry (indicative of a large and higher grade carbonatite deposit below surface), including 0.48-0.98% Nb2O5, 1.13-3.19% zirconium, >0.1% lanthanum, >0.1% cerium and >0.05% neodymium. On July 18, 2017, Arctic started a maiden drill program.

I just called management for a short interview and was informed that the interpretation of a carbonatite complex on the property now proved true when a German geologist, Patrik Schmidt (see picture to the right) who works for Dahrouge, started prospecting around the northern-most drill pad and found a carbonatite outcropping in a creek bed.

They then reorientated drill hole #4 to hit the carbonatite and the pictures of the core speak for themselves. A 77 m long intersection showed carbonatite with a diverse mineral assemblage. Assays are pending and may soon make the discovery of a niobium enriched carbonatite deposit official.

Recent work on the property focused on a 3,000 x 1,000 m area, where previous geophysics and rock-soil samples outlined a distinct anomaly.

Most recently, 4 holes were completed along with prospecting, mapping and sampling. Highlights include:

- Carbonatite and/or alkaline rock types intersected in 2 of 4 drill holes,

- an approximate 90 m mapped strike-length of carbonatite in outcrop with apparent estimated thickness of >50 m; and

- the discovery of numerous additional outcrops of carbonatite, and related rocks, across an area measuring approximately 800 x 200 m.

The most significant drill hole to date (CAP17-004 with an orientation of 163°/-55°) intersected:

- 53-75 m: calcite carbonatite, fenite, syenite, country rock

- 75-152 m: carbonatite (variable composition; see below picture)

- 152-219 m: syenite and fenite; EOH ("End of Hole").
Core pictures of recently completed drill hole CAP17-004 showing a carbonatite with diverse mineral assemblage. Soon, assays will make clear determination of the encountered mineralization. (Source: Arctic Star Exploration)
Above: Core picture of recently completed drill hole CAP17-004 potentially showing Lower Syenite. (Source: Arctic Star Exploration)

Left: Outcropping carbonatite in a creek bed recently discovered by Patrik Schmidt during prospecting. (Source: Arctic Star Exploration)

About Carbonatite Deposits

Carbonatite is a type of intrusive or extrusive igneous rock defined by mineralogic composition consisting of greater than 50% carbonate minerals. Carbonatites are rare, peculiar igneous rocks formed by unusual processes and from unusual source rocks. (Source)

Mineralized carbonatite systems have been mined for and/or are potential sources for commodities such as REE’s, niobium, tantalum, copper, nickel, iron, titanium, zirconium, platinum group elements (PGEs), gold, fluorspar, lime, sodalite, and vermiculite. Strong demand growth, stemming in part from a number of green energy solutions, has placed upward price pressure on a number of those commodities associated with carbonatites. Some of the more notable active and past producing carbonatite deposits known worldwide include Palabora (Cu, Ni, Au, PGE’s, other), South Africa; Bayon Obo (REE’s, Fe, Nb, fluorspar), China; Araxa (Nb), Brazil; Cargill (Phosphate), Canada; Niobic (Nb), Canada; Mountain Pass (REE’s), United States; and Mount Weld (REE’s), Australia.

For more information on the CAP Property, the Rocky Mountain Rare Metal Belt in British Columbia, globally significant niobium deposits, the booming niobium market with rapidly growing demand and recent niobium transactions, see Rockstone Report #3.
Recent drilling confirmed a carbonatite complex on the CAP Property. (Source: Arctic Star Exploration)

**Economic Importance of Carbonatite Deposits**

Carbonatites may contain economic or anomalous concentrations of rare earth elements, phosphorus, niobium-tantalum, uranium, thorium, copper, iron, titanium, vanadium, barium, fluorine, zirconium, and other rare or incompatible elements. Apatite, barite and vermiculite are among the industrially important minerals associated with some carbonatites.

Vein deposits of thorium, fluorite, or rare earth elements may be associated with carbonatites, and may be hosted internal to or within the metasomatized aureole of a carbonatite. As an example the Palabora complex of South Africa has produced significant copper (as chalcopyrite, bornite and chalcocite), apatite, vermiculite along with lesser magnetite, linnaeite (cobalt), baddeleyite (zirconium-hafnium), and by-product gold, silver, nickel and platinum. (Source)

**Previous Coverage**

Report #4: Another Grib Diamond Mine in Finland?

Report #3: Drill Program to Find One of the "Trump Metals": Niobium

*Schematic cross-section of a carbonatite complex* (source)
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