Panther Metals PLC – Dotted Lake: Technical Update, Inversion & Drill Targets

written by Raj Shah | October 7, 2024

October 07, 2024 (Source) – Panther Metals PLC (LSE:PALM) the company focused on mineral exploration in Canada, is pleased to provide an exciting update with regards to geophysical three-dimensional ("3D") inversion modelling and predictive Centre for Exploration Targeting grid analysis in support of drill targeting at the Dotted Lake Project ("Dotted Lake" or the "Project"), on the north limb of the Schreiber-Hemlo Greenstone Belt in Ontario, Canada.

Highlights

- Abitibi Geophysics have completed geophysical modelling and interpretation of Panther's airborne geophysical survey datasets to assist in drill targeting of nickel, cobalt, copper, gold and platinum group element ("PGE") bearing sulphide mineralisation associated with the mafic-ultramafic intrusive complex in the north-east of the Dotted Lake Project area.
- Centre for Exploration Targeting ("CET") grid analysis has identified target zones of significant structural complexity that present preferential sites for the development of mineral deposits.
- Ultramafic intrusive complex modelled in 3D from magnetic susceptibility inversion processing (Figure 1).
- Electromagnetic ("EM") conductor 3D plate modelling has identified two parallel conductors, situated on the northern flank of the ultramafic intrusive complex.

    - Longer of the two EM conductors (A) has a 500m strike length, with its eastern end interpreted to plunge to depth below the limit of the current survey data (Figure 1 & 2).

- Abitibi have identified a total of twenty-one prioritised drilling targets based on the CET and EM conductor plate modelling. The Abitibi targets are based on geophysical data processing alone.
- Abitibi targets show a very strong correlation with Panther's soil geochemical anomalies and highly anomalous 985ppm copper and REEs in lake sediments (Figure 3).
- Highest priority Abitibi CET and EM targets are located directly below or in close lateral proximity to very anomalous Ni, Co, Cu and Au soil results, reinforcing and prioritising the associated drilling targets.
- Exploration strategies involving drill targeting of geophysical modelled ultramafic intrusive feeder dykes coincident with soil anomalies have led to multiple discoveries of high-grade nickel and copper and PGE, to the east of Dotted Lake by GT Resources Inc. Preliminary interpretation suggests that the Dotted Lake ultramafic intrusive complex is part of the same mineralising system.

Nick O'Reilly, professional geologist and Panther Chairman, commented:

"*The 3D inversion modelling and conductive plate modelling of Panther's airborne geophysical survey data has reinforced and supplemented the base metal, PGE and gold anomalies identified by the Company's soil geochemical survey and prospecting work.*

The delineation of a 500m plus long, plunging conductor located on the northern flank of an ultramafic intrusive body located

directly below highly anomalous nickel, cobalt and copper in soil geochemical survey points presents a very compelling target, as do the numerous CET targets which are also coincident with strong soil anomalies and which are adjacent to one of the region's highest copper-in-lake sediment copper results (985ppm Cu), in the north of the Project area at Lampson Lake."

Darren Hazelwood, CEO commented:

"The Dotted Lake Project is located in a largely unexplored area on a wider greenstone belt and region that's a prolific host of numerous mines and known deposits.

With each additional work stream our confidence in the Project increases, both as the geological framework of the area becomes better understood and as we continue to monitor the exploration successes made by others nearby.

We've witnessed multiple levels of interest in the Project and seen Glencore invest in a neighbouring project whose geology correlates encouragingly with our own understanding of Dotted Lake. The independent inversion modelling we've announced today has already had a very positive impact on the Project, and the final pieces are coming into place to make a significant advancement.

It's without doubt that the Dotted Lake Project contains all the required discovery ingredients, both geologically and corporately. We'll continue wider discussions on the Project but in the meantime, we are focused on drill pad locations and putting the required logistics in place.

Panther owns Dotted Lake 100% outright, unusual for Canada there are with no underlying financial instruments attached, and we look forward to our strategy of maintaining that structure and delivering for the Company and our shareholders."

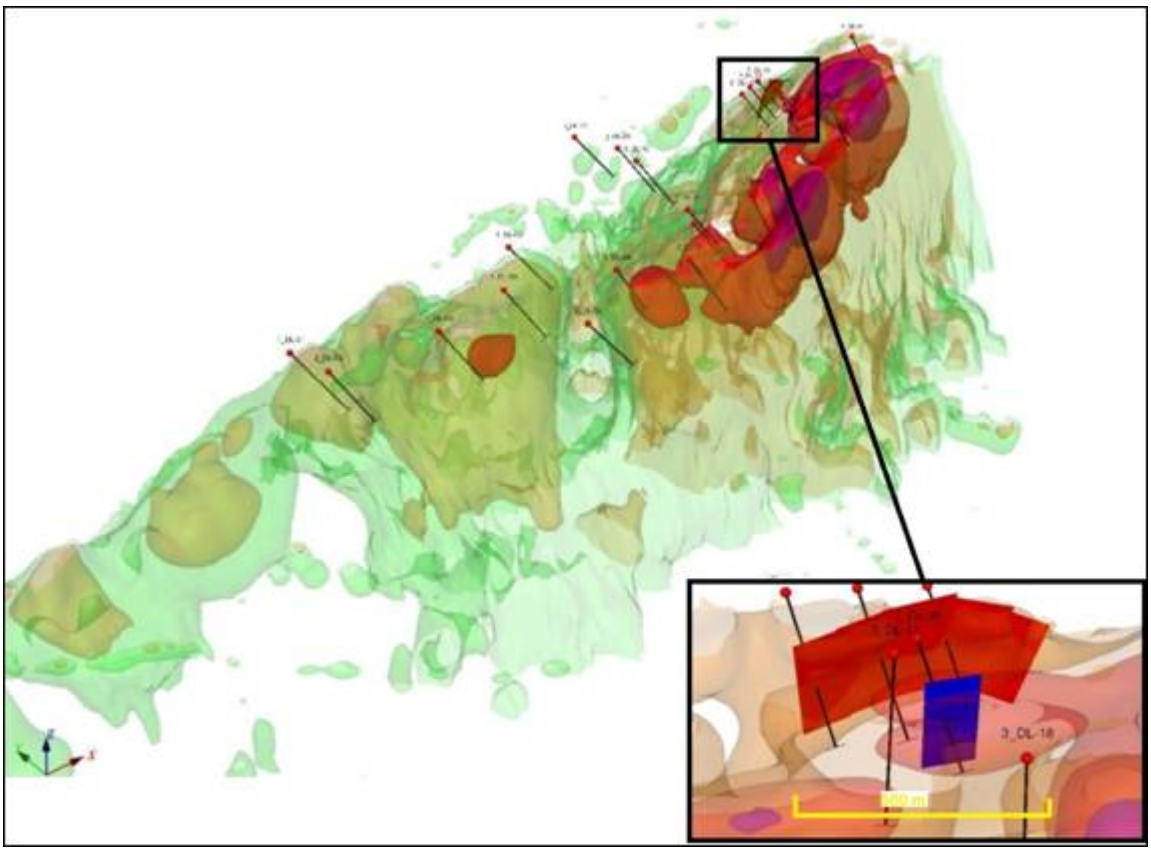

Figure 1: Three Dimensional Magnetic Susceptibility Model of Ultramafic Complex and Conductive Plates with Abitibi Targets in NE of Dotted Lake Project. *Inset: Enlarged representation of circa 500m long conductive target 'A' (red plates) on northern flank of ultramafic body.*

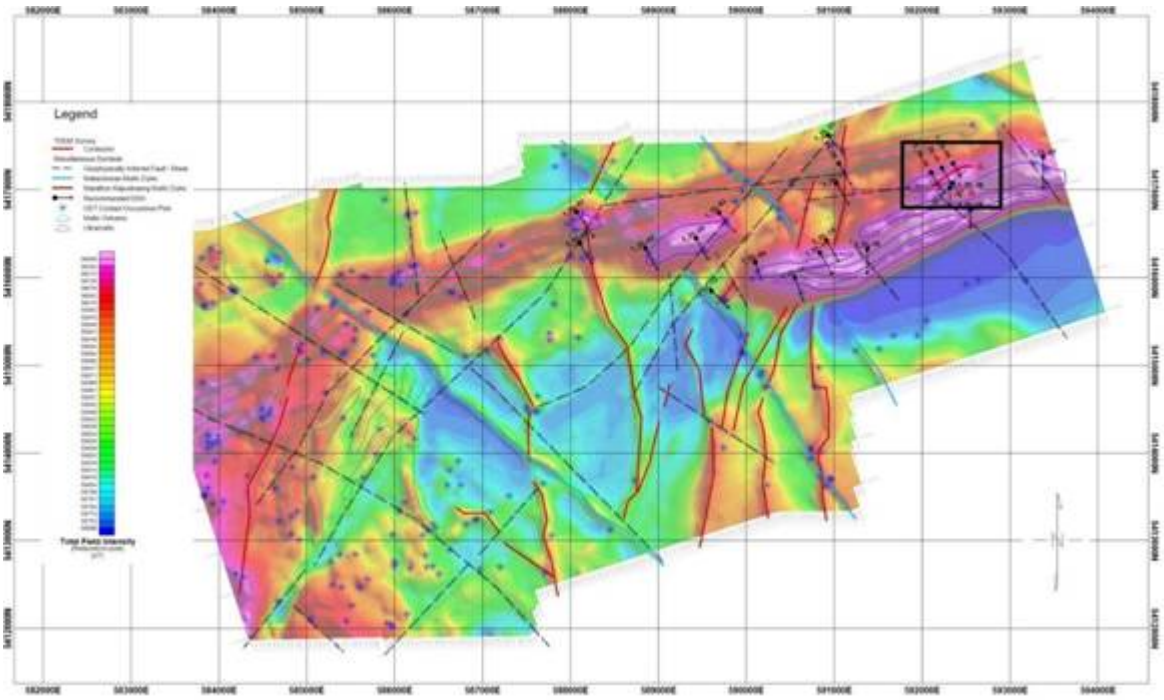

Figure 2: Total Magnetic Field RTP Map showing Abitibi Targets, CET Targets and EM Conductor Plate Target (boxed) over NE Dotted Lake Project

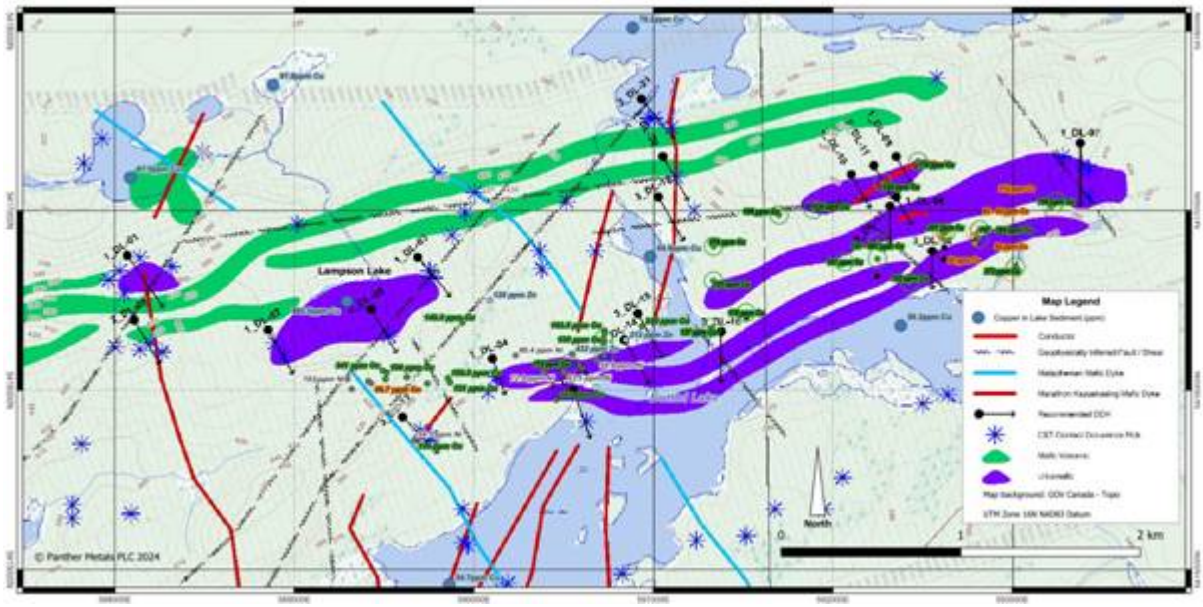

Figure 3: Compilation Map Showing, CET Targets and EM Conductor Plate Target with Soil Geochemistry Anomalies over NE Dotted Lake Project

Geophysical Modelling

Panther retained Abitibi Geophysics Inc (“Abitibi”) to conduct geophysical modelling and interpretation of the ProspecTEM airborne geophysical survey datasets previously obtained by Panther, to assist in drill targeting of nickel, cobalt, copper, gold and platinum group element (“PGE”) bearing sulphide mineralisation targeted in association with the mafic-ultramafic intrusive complex in the north-eastern sector of the Dotted Lake Project area.

The Project was covered by Panther’s 818 line-km airborne magnetic (“MAG”) and time-domain electromagnetic (“TDEM”) geophysical survey in 2020 with the data acquired on survey lines spaced 50 metres apart. The Abitibi follow-up recommendations are focused on a 5.6 km by 2.0 km in the north-eastern part of the Project area.

The MAG survey data identified large-scale magnetic formations as well as numerous dykes and sills. The magnetic response is primarily proportional to the iron content of the mafic rocks, the first vertical derivative of the magnetic field identified the local variations facilitating the interpretation of faults, shear zones, and dykes.

The southern portion of the Project area is mostly non-magnetic granites which are intruded by magnetic sills and dykes. The northern and southwestern portions of the Project area display a moderately magnetic east-west trending package of mafic volcanic rocks, whilst in the east of the Project, just south of the mafic volcanics, a strongly magnetic ultramafic intrusive complex is clearly identified, with two additional ultramafic intrusions interpreted to its west. These additional ultramafic bodies appear to be related to the complex but disconnected by major structural features.

Inversion Modelling

A 3D inversion of the magnetic data was commissioned to characterise the delineated magnetic features and therefore estimate their magnetic susceptibility and 3D geometry.

An unconstrained 3D magnetic inversion was performed on the residual grid using Seequent's Magnetisation Vector Inversion ("MVI") as well as a conventional magnetic inversion. Since remanent magnetisation is suspected in some magnetic anomalies, the MVI algorithm was utilised to calculate the magnetic susceptibility model for the study grid rather than the conventional inversion.

The final inversion result of the ultramafic intrusive complex is illustrated in **Figure 1**, as a 3D voxel of the MVI magnetic susceptibility. To estimate the depth extension and dip of the detected magnetic sources, as well as to locate possible deep shears, 6 horizontal slices were extracted from the MVI magnetic susceptibility model at different elevations.

Centre for Exploration Targeting Grid Analysis

A structural and predictive targeting analysis was conducted using the Centre for Exploration Targeting ("CET") grid analysis method on the TMI-RTP (total magnetic intensity – reduced to pole) grid.

Mineralisation often occurs in the regions of structural complexity adjacent to shear zones which act as conduits for mineralising fluids.

The CET grid analysis method identifies the discontinuities that correspond to both lithological boundaries and shear zones by using texture analysis and symmetry feature detection techniques. It uses fractal analysis to find zones of structural complexity.

The most prospective areas are those where inferred structural complexity occurs adjacent to the regions of magnetic discontinuity. This method then analyses structural associations to locate their intersections, as well as to find variations in the orientation of neighbouring structures. Finally, it generates an orientation entropy heat map that highlights the areas that are prospective.

The Dotted Lake CET analysis has identified target zones of significant structural complexity that are prospective for hosting base metal, PGE and gold deposits in the Project. The CET results are presented on **Figures 2 & 3**.

Electromagnetic Interpretation

Electromagnetic geophysical methods are used to measure sub-surface electrical conductivity. In mineral exploration these techniques can be applied to identify finite conductive features that may be related to conductive massive sulphide lenses and mineralised bodies.

The Dotted Lake survey displays weak subvertical TDEM conductors in the ultramafic intrusive complex. As the TDEM data appears to be buried in noise apart from a small conductive area, a filter was applied to help identify broader conductive trends. An upward continuation (to 100m) was used to show large scale conductivity features. Some subtle broad conductive trends can be identified which appears to be related to large scale shears/faults.

The primary conductive trend (A) is approximately 500 metres in width. The trend displays a slight arcuate shape along strike as well as along its depth-to-top. It is modelled using 5 plates to account for its geometry and the trend appears to plunge to depth at its eastern end.

The shape of the conductor generally agrees with the shape of the magnetic ultramafic intrusion associated with it. A second localised anomaly (B) located about 240 metres south has a similar EM response and is likely related to the same source/composition as the A trend.

Based on the survey data alone, no clear conclusion can be made regarding the depth extent of the conductive lenses.

Abitibi have recommended drilling of the A trend, commencing where the conductivity is highest, where it is probably nearer to the surface, with further drilling centred on either side targeting the deeper modelled depth-to-top. Drill testing of the B trend would follow-on dependant on the information gleaned from the preceding holes.

Findings

Based on the geophysical data processing alone, not Panther's highly prospective soil sampling dataset, Abitibi have identified a total of twenty-one prioritised drilling targets based on the CET and EM conductor plate modelling, in the focused interest area in the north and northeast of the Dotted Lake project.

A subsequent analysis of Abitibi targeting shows a very strong correlation with Panther's targets identified from soil geochemical sampling. The highest priority Abitibi CET and EM targets are located directly below or in close lateral proximity to very anomalous base metal, PGE and Au in soil results, reinforcing and prioritising the associated drilling targets (Figure 3).

Five of the CET targets coincide with an ultramafic intrusive body modelled directly below Lampson Lake. Significantly, government regional lake sediment sampling work was shown

that Lampson Lake contains highly anomalous 985 ppm copper together with anomalous Cd, Co, Sn ,W, Y and heavy rare earth elements (“REEs”). The presence of anomalous REEs in the lake sediment is favourable and may be indicative of hydrothermal alteration. Anomalous levels of REEs in lake sediment are spatially associated with the hydrothermally altered rocks near the Winston Lake Cu–Zn deposit in the Schreiber greenstone belt.

The airborne electromagnetic and magnetic data alone leaves a level of uncertainty as to the position of possible sulphide lenses. The presence of anomalous nickel, cobalt and base metals in the soils may also be related to disseminated sulphides that do not produce a significant EM response in which case drill testing results will provide support to follow-up survey work such as deep-targeted induced polarisation ground geophysics to detect massive or disseminated sulphides at depth.

Due east of the Dotted Lake project, on a neighbouring property, GT Resources Inc. have drill targeted ultramafic feeder dykes coincident with soil anomalies, leading to multiple discoveries of high-grade nickel and copper and PGE. Preliminary interpretation suggests that the Dotted Lake ultramafic intrusive complex is part of the same mineralising system.

Geological Setting

The Dotted Lake project is located upon the north-eastern end, constituting the northern limb, of the Schreiber-Hemlo Greenstone Belt (the “Belt”), in the Abitibi-Wawa sub-province of the Superior province of the Canadian Shield. All rocks are of Archaean age (2.7 billion years old), except for the Proterozoic diorite dykes.

The primary rock type of the Belt is mafic volcanics, felsic and intermediate volcanic rocks and clastics overlie these mafic volcanics and the belt is intruded by numerous felsic

granitoids. The south-eastern sector of the Project area is bounded to the south by a biotite leucogranodiorite intrusive body constituting the Dotted Lake batholith. These intrusive rocks are pink in colour, foliated and medium grained, and appear to intrude both the metavolcanics and mafic/ultramafic rocks.

Several stages of regional folding have occurred in the Belt, the latest stage is the most pervasive and occurred contemporaneous to, or predated, the intrusion of the Dotted Lake batholith.

The predominant rock type in the centre and south-western quadrant of the Project area is foliated, fine grained, dark green, amphibole rich metavolcanic rock. Medium and coarse grained amphibolites are less common and occasional remnant pillow textures have been observed indicating a submarine depositional environment. Small sills and dykes of granitoid rocks are common in the volcanic rocks.

The Project area displays NW-SE oriented faults and Matachewan mafic dykes, N-S oriented Marathon / Kapuskasing dykes, and NE-SW oriented faults/shear zones.

The north-eastern portion of the Project area contains a mafic and ultramafic intrusive complex of gabbro, peridotite and serpentinised peridotite intruded along the southern flank of the mafic volcanics. This ultramafic intrusive complex presents a significant target area for nickel, cobalt, copper and PGE sulphide deposits, which constitute an important source of critical minerals.

The Project is also prospective for lode-gold mineralisation particularly in zones of structural complexity (where faults, shears, deformation, and feeder dykes may be present) and in the

deformed zones peripheral to the Dotted Lake batholith.

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Notes to Editors

Panther Metals PLC is an exploration company listed on the main market of the London Stock Exchange. Panther is focussed on the discovery of commercially viable mineral deposits. The Company’s operational focus is on established mining jurisdictions with the capacity for project scalability. Drill targets are assessed rapidly utilising a combination of advanced technologies and

extensive geological data to decipher potential commercial viability and act accordingly. Panther's current geological portfolio comprises of three highly prospective properties in Ontario, Canada while the developing investment wing focuses on the targeting of nickel and gold in Australia.

Obonga Project

Panther Metals acquired the Obonga Greenstone Belt in July 2021 and have already identified five prospective primary targets: Wishbone, Awkward, Survey, Ottertooth and Silver Rim. A successful Phase 1 drilling campaign at Wishbone in Autumn 2021 revealed the presence of significant VMS-style mineralised systems on the property – the first such discovery across the entire greenstone belt. Intercepts include 27.3m of massive sulphide in hole one, and 51m of sulphide-dominated mineralisation in hole two. Both drill holes contained multiple lenses. Anomalous high-grade copper in lake sediment close to the target area has also been identified, increasing confidence in the prospectivity of the location.

Awkward is a highly anomalous magnetic target, interpreted to be a layered mafic intrusion and magmatic conduit based on mapped geology and airborne geophysics. Historic sampling in the area returned anomalous platinum and palladium (Pt, Pd) values, while historic drilling on the periphery of the target intersected non-assayed massive sulphide and copper (assumed to be chalcopyrite), non-assayed disseminated pyrite and chalcopyrite in coarse gabbro, and non-assayed 'marble cake' gabbro (matching the description of the Lac des Iles Mine varitexture gabbro ore zone).

Two additional named targets, Survey and Ottertooth, both displays further coincident magnetic and electromagnetic anomalies and are adjacent to the contact between intrusive and

extrusive mafic rocks. Historic drilling at Survey intersected several meters of massive sulphides in multiple intersections (main parts of the anomaly remain untested) while Ottertooth remains untested in its entirety.

Dotted Lake Project

Panther Metals acquired the Dotted Lake Project in July 2020, it is situated approximately 16km from Barrick Gold's renowned Hemlo Gold Mine. An extensive soil programme conducted in 2021 identified numerous gold and base metal targets, all within the same geological footprint. Following the installation of a new trail providing direct access to the target location, an initial drilling programme in Autumn 2021 confirmed the presence of gold mineralisation within this system with anomalous gold continuing along strike and present within the surrounding area.

Fulcrum Metals Plc

Fulcrum Metals PLC (LON: FMET) is an AIM listed exploration company which finances and manages exploration projects focused on Canada, widely recognised as a top mining jurisdiction.

FMET currently holds a beneficial 100% interest in highly prospective gold and base metals projects in Ontario and Uranium projects in Saskatchewan.

Fulcrum's strategy is to focus on discovery and commercialisation of its Projects through targeted exploration programmes. The primary focus is to make an economic discovery on the flagship Schreiber-Hemlo Properties and establishing the prospectivity of its wider Ontario and Saskatchewan portfolio with a view to securing potential joint venture and/or acquisition interest.

Panther Metals Plc own 15% of the issued share capital of Fulcrum Metals Plc and a 2% NSR on the Big Bear project.

Panther Metals Australia

Following the listing of Panther Metals' Australian assets on the Australian Securities Exchange ("ASX") in December 2021. The ASX listing has provided the Australian projects with the necessary capital to advance drill-ready targets focused on nickel and gold (within the Tier 1 Mining Districts of Laverton WA and in the NT). Through this spin-out Panther holds an attractive investment prospect, without any disruption to the Company's capital structure and without any financial obligations.

Conclusion

Panther Metals understand that the commercial realities of building an exploration company requires expertise in geology, finance, and the markets within which they operate. The Company's extensive network of industry leaders allows it to meet these objectives. Ultimately however, drilling success is the only route to discovery: the fundamental objective of any exploration company. Once Panther's world-class geological team identify the anomalies, they work hard to get drilling. The drill hole is the only place where substantial and sustained capital growth originates and it's with that operational focus Panther Metals will continue to advance.