Långban

A cornucopia for new mineral species?

Jörgen Langhof[1], Dan Holtstam[1], Andreas Karlsson[1]
[1]Department of Geosciences, Swedish Museum of Natural History, Box 50007, SE-104 05 Stockholm, Sweden; jorgen.langhof@nrm.se

Fig 1.

Fig 2.

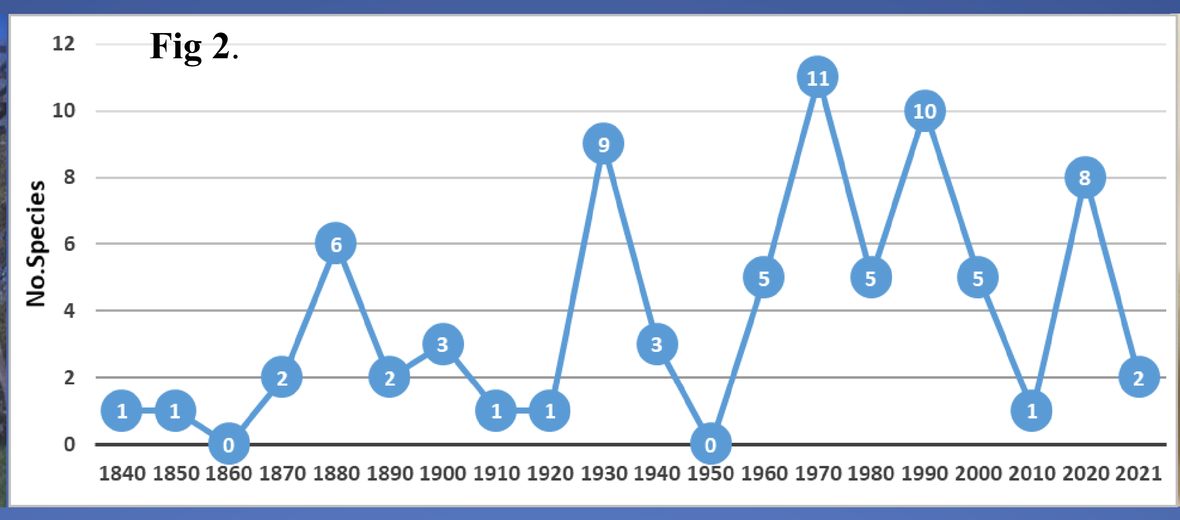
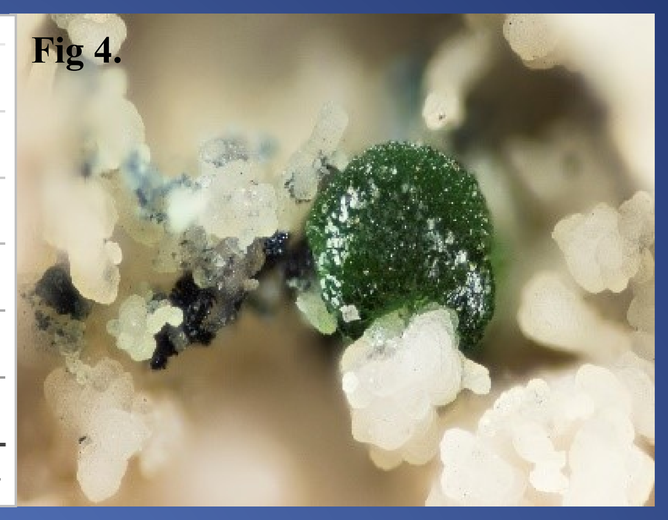


Fig 4.



The Långban deposit in Sweden (Fig. 1) is at the moment type locality for 76 valid mineral species (Fig. 2). During the last 14 years 11 new species have been discovered and approved (see table), and almost half of them were found on the dumps (D) by collectors and the remaining are from older museum material (M). Among the elements essential in type minerals, Cl, Be, As and Pb play relatively the most important role (Fig.3). For example, vargite is one of the new hydrated arsenates to be published (Fig. 4).

The vast Långban collection at the Swedish Museum of Natural History (NRM), exists thanks to mainly two driving forces during the main ore producing period (1915-1925), whose activities coincide with many interesting mineral finds – the ore-picker Karl Johan Finneman (1880-1953) (Fig. 5) and mineralogist Gustaf Flink (1849-1932) (Fig. 6). Their tireless interest and collecting effort are today hard to grasp. In the mid 1960s and early 1970s, a renewed research interest awoke with the entrance of the brilliant Paul B. Moore (1940-2019; Fig. 7) on the scene, who described 12 new species from Långban only. Research on Långban material has more or less been carried out at NRM for around 150 years and during the last 30 years a new generation of researchers have revitalized Långban research – much inspired by Moore's work.

New species will be found without doubt in Långban specimens further on – but the question is how many? The development of new analytical technique for solving crystal structures for example, will enable scientists to deal with smaller and smaller crystals and fragments of crystals. The NRM collection will likely continue to deliver new species from poorly investigated or unexamined material, and more focused studies on specific mineral associations could reveal unforeseen minerals. In addition skilled collectors will also add new material to science, from this small ore deposit with a unique geochemistry formed during complex geological processes.

Britvinite	M	$[Pb_7(OH)_3F(BO_3)_2CO_3][Mg_{4.5}(OH)_3(Si_5O_{14})]$	2007
Långbanshyttanite	M	$Pb_2Mn_2Mg(AsO_4)_2(OH)_4 \cdot 6\,H_2O$	2011
Gatedalite	D	$ZrMn_2^{2+}Mn_4^{3+}SiO_{12}$	2013
Wiklundite	D	$Pb_2(Mn^{2+},Zn)_3(Fe^{3+},Mn^{2+})_2(Mn^{2+},Mg)_{19}$ $(As^{3+}O_3)_2[(Si,As^{5+})O_4)]_6(OH)_{18}Cl_6$	2017
Hjalmarite	M	$NaNaMn(Mg_5)Si_8O_{22}(OH)_2$	2017
Hydroxylhedyphane	M	$Ca_2Pb_3(AsO_4)_3(OH)$	2018
Mangani-pargasite	D	$NaCa_2(Mg_4Mn^{3+})Si_6Al_2O_{22}(OH)_2$	2019
Langhofite	D	$Pb_2(OH)[WO_4(OH)]$	2019
Vargite	M	$Cu_2Mn_3(AsO_4)_2(OH)_4 \cdot 4\,H_2O$	2020
Erssonite	D	$CaMg_7Fe_2^{3+}(OH)_{18}(SO_4)_2 \cdot 12\,H_2O$	2021
Igelströmite	M	$Fe^{3+}(SbPb)O_4$	2021

Fig 3.

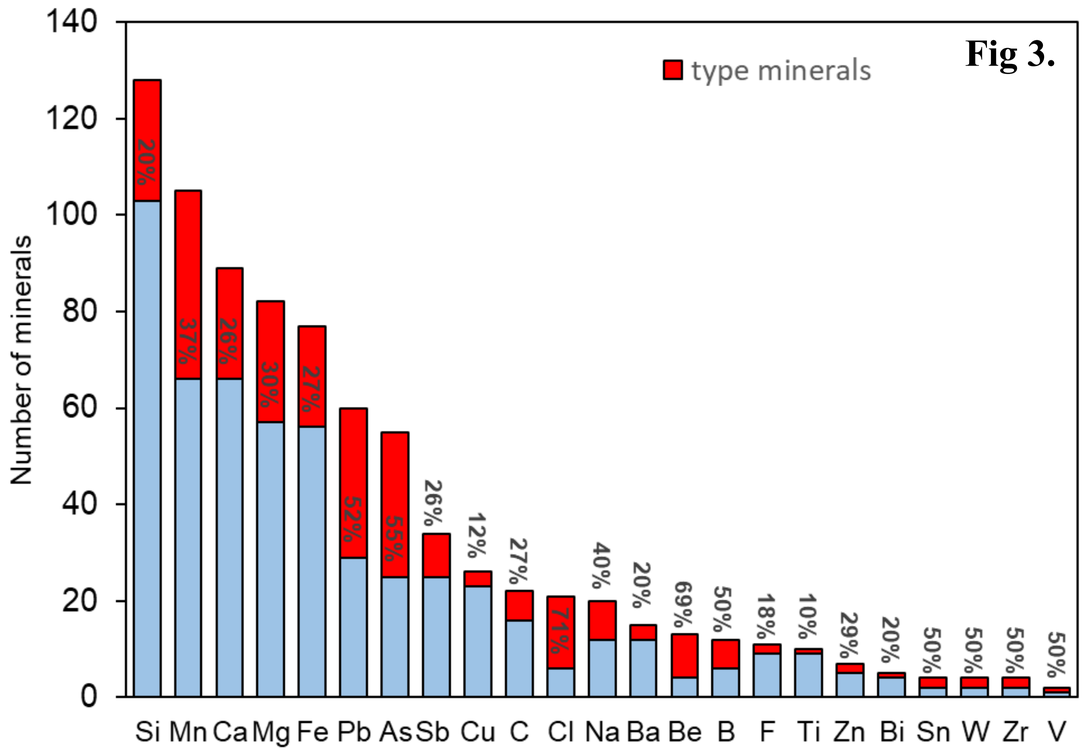


Fig 5.

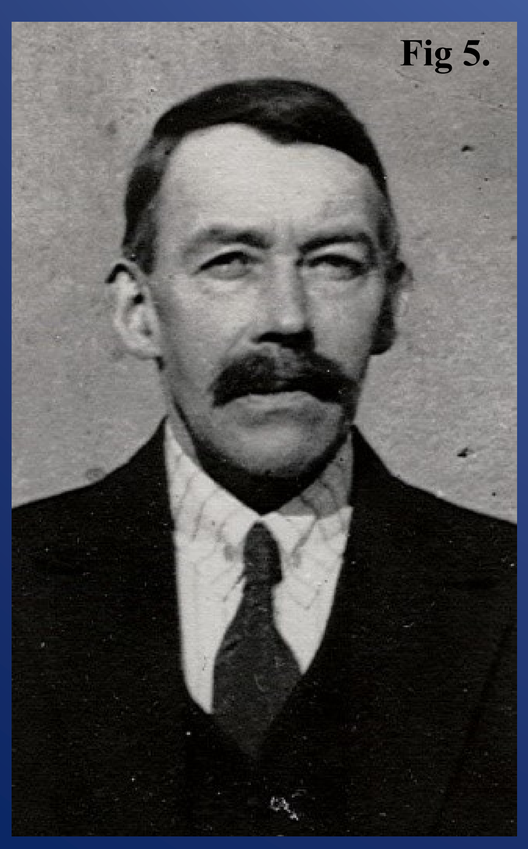


Fig 6.

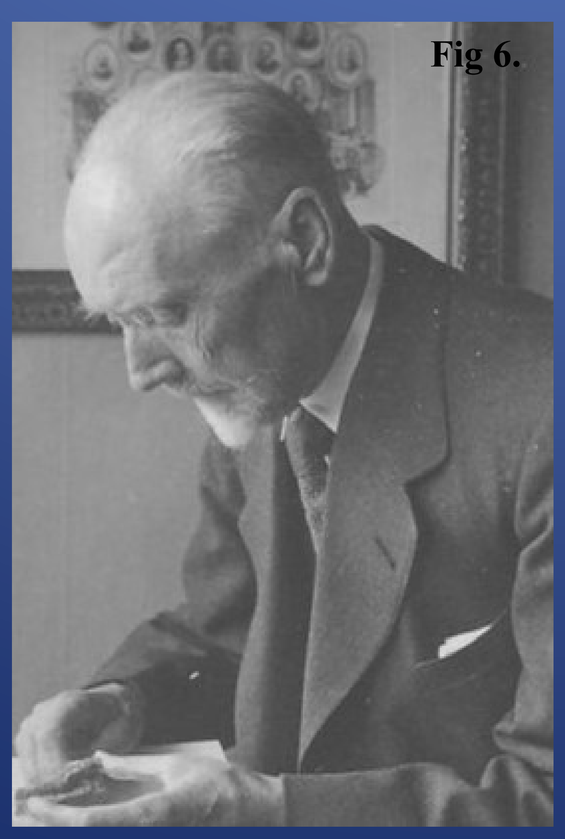


Fig 7.