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**Three Pioneering Geologists of the Bushveld Complex, South Africa: Hall, Merensky, and Wagner**

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Arthur Lewis Hall (1872-1955) mapped the 2,055 Ma Bushveld Complex over some 29 years, a remarkable achievement culminating in the 1935 publication of one of the most important memoirs of the Geological Survey. Hall also published on some ore deposits in the intrusion and metamorphic aureole. The rugged landscape of the Eastern Limb is a superb area for examining layered igneous rocks and it was here that Hall led the 1922 Shaler Memorial Expedition. This select group of international scientists included R A Daly who proposed vertical tectonics for creation of the mountain ranges in the floor rocks. The expedition also observed that rock layers, including chromitite and magnetite bands are laterally contiguous over tens of km and whilst camped at Zwartkoppies commented on an unusual rock-type that constituted an irregular discordant body. Two years later, Hans Merensky (1871-1952) and his Lydenburg Platinum Syndicate (LPS) discovered economic platinum in the Mooihoek pipe (on 15<sup>th</sup> August 1924). The unusual pipe orebodies of the Bushveld were described by Percy Albert Wagner (1885-1929) in articles published in *Economic Geology* in which the mineralized rocks were named as "hortonolite dunite-wehrlite pegmatite". Merensky and Hall had, however, long been convinced that layered deposits of platinum would occur in the Eastern Limb and in this regard Hall in 1908 co-authored an article on the platinum content of chromitites (one layer was the UG2) based on samples collected by Merensky. As is well known, Merensky went on to discover the layered reef that now bears his name (at Maandagshoek in September 1924) and together with the LPS delineated deposits throughout the intrusion. Many of the exploration trenches and mine workings developed by the LPS were documented by Wagner in his classic book of 1929 and a historical site at the Winnaarshoek locality includes old mine workings which could be refurbished.



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Merensky (centre) was born to German missionary parents at Botshabelo (near Middleburg), not far from the Bushveld but grew up and was educated in Germany. Both Merensky and Hall (left) – the latter was born and educated in Germany and the UK - adopted the Republic as their home and in which they remained in retirement. Wagner (right) was born at Richmond (in the Cape) to German parents and was educated in Cape Town and Germany. Obituaries to Wagner were published in local and international journals. Wagner made remarkable contributions to the geology of southern Africa, and although unable to attend the fifteenth IGC (1929), the only other time this conference was held in South Africa (Hall was Secretary General) contributed several field guides.

