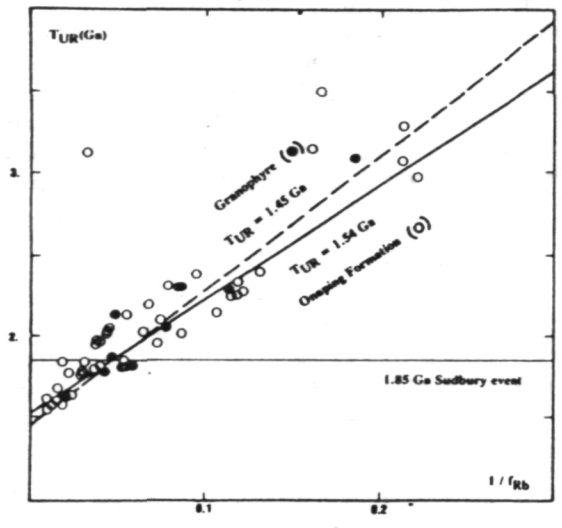

Fig. 3. T_{Ur} vs. $1/f_{Rb}$ diagram after [16] for Onaping breccias and whole-rock samples from the granophyre (SIC). Data sources [10,12–14,17,18].

and the intercept in T_{Ur} vs. $1/f_{Rb}$ plots [16] point to a major Rb-Sr fractionation around 1.54 Ga ago (Fig. 3). This model age is in the same range as 1.63 ± 0.07 Ga obtained for the metasomatic matrix of the FB (Fig. 2). It has to be pointed out that Rb-Sr whole-rock data for the granophyre of the SIC [17,18] also show this event (Fig. 3), whereas the norite behaved as a closed system during this phase.

Preliminary Sm-Nd results for gabbroic dikes of tholeiitic composition that intrude Chelmsford wackes [19] are listed in Table 1. They have an internal isochron age of 1648 ± 103 Ma (2σ) with $\varepsilon_{Nd}^{T=1.65Ga}$ of -5.4. The ε-value, their model age T_{DM} relative to the depleted mantle [20] of ~2.7 Ga, and the intrusion age point to a remobilization of old crust during the Penokean orogeny, but a mantle magma heavily contaminated with crustal material may be also consistent with the data. These dikes apparently have no connection with the SIC and postdate the impact event.

Rb-Sr dating of a shock event in impact-related breccias seems to be possible only if their matrix had suffered total melting by the hot melt sheet (FB) or if they contain a high fraction of impact melt (suevitic Onaping breccias), whereas the degree of shock metamorphism in rock or lithic fragments plays a minor role [11]. In the Sudbury case, however, the impact melt in the suevitic breccias is devitrified and recrystallized, which changed Rb/Sr ratios quite drastically. Therefore, the Onaping breccias give only age limits for alteration and low-grade metamorphism. The Sm-Nd system was not reset during the Sudbury event; clasts as well as the matrix in the FB and in the Onaping breccias show preimpact "Archean" Nd isotope signatures.

TABLE 1. Sm-Nd analytical results for gabbroic dykes, Sudbury structure.

	Sm [ppm]	Nd [ppm]	$^{147}Sm/^{144}Nd$	$^{143}Nd/^{144}Nd$* ±2σ
WR	1.692	6.755	0.15139	0.511872 ± 16
coarse-grained				
plag 180-250 mm	1.009	5.302	0.11501	0.511464 ± 10
mafics 180-250 mm	2.386	9.490	0.15197	0.511860 ± 7
WR	2.619	11.86	0.13311	0.511687 ± 23

*Normalized to $^{146}Nd/^{144}Nd$ = 0.7219; 2σ errors refer to the last significant digits.

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HONG KONG IS AN IMPACT CRATER: PROOF FROM THE GEOMORPHOLOGICAL AND GEOLOGICAL EVIDENCE.

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Hong Kong is a famous city in southern China, 22°19'N, 114°10'E, within which the urban districts of Hong Kong, Kowloon, and Victoria Harbour are situated. Hong Kong is surrounded by mountains with a diameter of 11 km. Three million people live inside the basin.

The round structure of the mountains in Hong Kong has been described as a granite dome that is deeply eroded (batholith). In this paper, the circularity of the mountains, the existence of a central hill, the inner slope of the mountains being greater than the outer slope, the presence of deep layer rock inside the basin, and the depth-to-diameter ratio have been studied. All this evidence shows that the Hong Kong structure satisfies the geomorphological requirement of an impact crater.

Some shock metamorphic phenomena of the rocks in Hong Kong such as planar features, microspherilitic silica glass (lechaterlierite), fused margins of rock fragments, concussion fractures, impact glass in which some schlierens are consistent with pyroxene spiculites, etc., were first discovered in October 1990. In Hong Kong Island, an impact melt sheet has been observed from the Victoria Peak to the southern shore. Quenching fractures of quartz in Kowloon fine-grained granite has also been discovered.

In our work, the K-Ar age (83.34 + 1.26 m.y.) of the impact melt rock, which is younger in comparison to the K-Ar age (117 m.y.) in Hong Kong and Kowloon granite, has been measured, and the phenomena indicate that after the granite body formed, there was another geologic event. Maybe it is the Hong Kong impact cratering event.