

Tribute to Mr H Julian Goldsmid



in 1954...



in 2004...

Honouring H Julian Goldsmid's contributions to thermoelectrics

50 years ago, H Julian Goldsmid published – jointly with R W Douglas – his groundbreaking paper entitled: “**The use of semiconductors in thermoelectric refrigeration**”

ICT2004 commemorates this momentous event and honours H Julian Goldsmid's contributions to thermoelectrics.

The use of semiconductors in thermoelectric refrigeration

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In the past the possibility of thermoelectric refrigeration has been considered, but all attempts to produce a practical refrigerator have failed owing to lack of suitable thermocouple materials. In this paper it is proposed that semiconductors should be used and the factors governing their selection are discussed. It is concluded that the semiconductors should be chosen with high mean atomic weights and that they should be prepared with thermoelectric powers lying between 200 and 300 $\mu\text{V.}^\circ\text{C}^{-1}$. Preliminary experiments have led to the production of a thermocouple consisting of bismuth telluride, Bi_2Te_3 , and bismuth, capable of maintaining 26° C of cooling.