

Neither of the two critical flux we detected increase steadily with pressurization of the bath, as was the case in Roubeau (7) experiments, which were carried out up to substantial temperature differences, and which cannot be directly compared with our experiments.

The existence of this second flux may also explain the apparently surprising results of Goodling and Irely (8), Chapman (9), Lemieux and Léonard (10), who note an important effect of the depth of immersion in saturated superfluid baths on convex geometries (cylinders, wire or planes) which allows intense convection in a low viscosity fluid.

V - CONCLUSION -

For the purpose of maintaining a superconducting system at a temperature as low as possible, it is worth while to use superfluid helium under pressure, which affords many advantages, both technological and electrical, over saturated superfluid helium. However in this case heat transfer will be limited to the first critical heat flux.

ACKNOWLEDGEMENT -

We wish to present our sincere thanks to Mr. P. Roubeau for many rewarding discussions on this subject.