increases $A(T)$ determined from bulk liquid measurements may not be appropriate to the small slits for *any* T_0 at low power inputs. For T_0 less than about 1.8°K this is of little consequence since in that region the experimental data indicate that the contribution of the Gorter-Mellink term is negligibly small when l is large, and becomes appreciable only when $l < d$; however, for T_0 near the λ point this term is important even for low power inputs. Hence, according to Vinen's theory, for the simultaneous conditions of T_0 near T_λ and low $\bar{q}$ we should expect to find poor agreement between theory and experiment, which is indeed the case. Figure 4 also indicates the region in which the Gorter-Mellink term becomes comparable to the linear term. Hence for the larger heat flows the former term dominates and the selection of the proper values of $A(T)$ becomes more important in order to achieve a good fit in this region.

It should be pointed out that near the λ point the vortex-line model as presently developed certainly provides an inadequate description for the very complicated situation of flowing liquid He II; hence the above considerations, although consistent with the theory, probably do not describe the sole mechanism for deviations near the λ point. In section IV we have already mentioned another possible source of deviations, namely, the velocity dependence of the mutual friction force. There are undoubtedly others. Furthermore, the above argument rests upon Vinen's assumption that the degree of turbulence in the fluid is measured by the velocity at a vortex line due to the velocity field of a neighboring line which in turn is assumed to be proportional to the average relative velocity of the two fluids. The validity of this treatment is open to question.

Whereas it is rather reassuring that the results presented here are described so well by the vortex-line theory, it is to be noted that application of this model to the smaller slits ($d < 10^{-3}$ cm) involves certain additional difficulties, some aspects of which are discussed in the following:

The values of the phenomenological parameter $A(T)$ as given by Vinen are by no means generally found by other workers, even for channels with $d > 10^{-3}$ cm. This situation is well summarized by Kramers (*22*), to which may be added data given recently by Brewer and Edwards (*17*). For $d > 10^{-3}$ cm values of $A(T)$ from these other sources show the same temperature dependence as those of Vinen, but differ in magnitude by as much as a factor of ± 2 or 3 (see Table II); for $d < 10^{-3}$ cm some results show the *reverse temperature dependence*. As already indicated $A(T)$ is considered to be descriptive for isotropic turbulence and independent of channel size, except perhaps for "small" channels. Such restrictions being rather vague when applied in practice to a given experimental arrangement, it is not always clear that the experiments are compatible with the assumptions of the theory. With regard to the results of I and II and the present work considerable effort has been made to ascertain whether the theoretical assumptions are satisfied. From the discussion in Section II of this paper