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To : Members of the E.E.C. and N.P.R.C.

From : R. Mermod, M. Vivargent and K. Winter

Re : Comments on our experiment in b_8

1) The part of our experiment concerning $K_S^o - K_L^o$ interference in the $\pi^+ \pi^-$ mode is finished. The final analysis of the data is under way and will produce a good value of the mass difference, $m_S - m_L$ and of the composed phase $\varphi_\eta - \varphi_A$. The other part of the experiment aims at a determination of φ_A from the interference $K_S - K_L$ in the $K_{\mu 3}$ mode in order to derive φ_η.

2) The experiment of C. Rubbia and J. Steinberger designed to detect $K_S - K_L$ interference in the $(\pi^+ \pi^-)$ mode near the production region of K^o mesons "can find the phase φ_η directly, provided Δm is known". (J.S. Bell and J. Steinberger, Proceedings of the Oxford International Conference on Elementary Particles, p. 205).
The relation between the error on φ_η introduced by the error on Δm is roughly $10 \cdot \sigma(\Delta m) = \sigma(\varphi_\eta)$. The best value of Δm will presumably come from our final result. In this way two experiments and their possible systematic errors are linked together without any independent check.

3) This check, however, can be provided by the $K_S - K_L$ interference in the $K_{\mu 3}$ mode in our experiment, which will give an independent determination of φ_η. Due to the breakdown of the P.S., we don't have enough data to determine φ_A already. It would seem to us that an experiment which had been accepted by the N.P.R.C. should be given the chance to be finished. The required running time has been estimated to 3 - 4 weeks, corresponding approximately to the time lost by the P.S. breakdown (including parasiting weeks).