Fischbach *et al.* Respond: In the accompanying Comment[1] Keyser, Niebauer, and Faller (KNF), claim that we[2] misinterpreted the Eötvös-Pekár-Fekete (EPF) data by using the results quoted by EPF rather than the raw $\Delta\kappa$ values. They fail, however, to note that one can equivalently use either the raw data or the final corrected data for the investigation of a correlation with B/μ, since $(B/\mu)_{\text{brass}} \cong (B/\mu)_{\text{Cu}}$. EPF corrected their data (in this case, legitimately) by assuming that the brass container did not contribute to the acceleration anomalies. Furthermore, even if one were studying a property in which brass was distinctly different from copper, only the H_2O-Cu datum would require special treatment. This is because for all of the other comparisons in which the sample was contained in a brass container, the Cu reference was also contained in a brass cylinder similar in size to that used to hold the sample. Moreover, a fit to the data with the brass vials yields very nearly the same parameters as were obtained in Ref. 2.

KNF quote B/μ for various materials which differ somewhat from ours. For asbestos, KNF correctly note that it can contain a large amount of actinolite. However, the closest source of asbestos to Hungary would have been the Asbest region in the Ural mountains, which "as far as is known, produces only chrysotile,"[3] which is what we used in Ref. 1.

KNF note that the $RaBr_2$ datum was not included. The reason for this is that in the same section of the paper in which EPF discuss their measurements of $\Delta\kappa$ for $RaBr_2$, they also discuss a series of experiments which demonstrate the various anomalous effects which can arise from thermal heating of the apparatus by the $RaBr_2$ sample. It was for this reason that this datum was excluded from the overall analysis in Ref. 1. Furthermore, a subsequent recheck of the EPF paper has revealed a typographical error in the *sign* EPF quote for this value. With the corrected sign $\Delta\kappa$ is now $(+1 \pm 2) \times 10^{-9}$, and this result agrees with the value obtained for Cu-Pt within the quoted errors. One can infer from this comparison that their apparatus was not excessively sensitive to thermal effects.

KNF also comment that the Renner data should be included along with the EPF data in a search for a possible correlation with $\Delta(B/\mu)$, although they do not give any compelling reasons for our disregarding the criticism of these data by Roll, Krotkov, and Dicke[4] (RKD). RKD's primary criticism was that Renner's quoted errors "are not consistent with his claimed $\frac{1}{20}$ scale-division reading error." Second, RKD also note that Renner incorrectly evaluated his errors, which RKD give as a possible explanation of the inconsistency between Renner's quoted errors and his scale-reading accuracy. Thirdly, RKD note that the mean values are too small compared even to his quoted errors. Finally, we note that even if Renner's data were completely valid, it would still be incorrect to plot them on the same graph with those of EPF. The reason for this is that, as we[5] and others[6] have noted, the magnitude and sign of the slope $\Delta\kappa/\Delta(B/\mu)$ that one obtains from a particular Eötvös experiment is highly sensitive to the local matter distribution. The EPF and Renner experiments were not in fact performed in the same location.[7] Hence if the latter were carried out in a relatively symmetric environment, it could very well be the case that Renner would have been expected to see an (almost) null result.

The apparent discrepancy between the geophysical and the EPF data can be resolved by noting that the effect of the nearby matter distribution is to change both the sign and magnitude of the Eötvös anomaly compared to what one obtains from the naive spherical model of the Earth used in Ref. 2. Moreover, since (9) and (10) of Ref. 2 effectively involve the product $\alpha\lambda$, these equations can be made consistent by an increase of either λ or α. Recent work of Holding, Stacey, and Tuck[8] indicates that the value of λ implied from their data is so uncertain that there is at present no conflict in the magnitudes of the effects implied by the EPF data.

E. Fischbach,[1,2] D. Sudarsky,[2] A. Szafer,[2]
C. Talmadge,[2] and S. H. Aronson[3,4]
[1]Department of Physics
University of Washington
Seattle, Washington 98195
[2]Department of Physics
Purdue University
West Lafayette, Indiana 47907
[3]Brookhaven National Laboratory
Upton, New York 11973
[4]CERN
1121-Geneva 23, Switzerland

Received 17 March 1986
PACS numbers: 04.90.+e

[1]Paul T. Keyser, Timothy Niebauer, and James E. Faller, preceding Comment [Phys. Rev. Lett. **56**, 2425 (1986)].

[2]E. Fischbach, D. Sudarsky, A. Szafer, C. Talmadge, and S. H. Aronson, Phys. Rev. Lett. **56**, 3 (1956).

[3]*McGraw-Hill Concise Encyclopedia of Science and Technology,* edited by S. P. Parker (McGraw-Hill, New York, 1984), p. 147.

[4]P. G. Roll, R. Krotkov, and R. H. Dicke, Ann. Phys. (N.Y.) **26**, 448 (1964).

[5]C. Talmadge, S. H. Aronson, and E. Fischbach, University of Washington Report No. 40048-12-N6, 1986 (to be published).

[6]P. Thieberger, Phys. Rev. Lett. **56**, 2347 (1986) (this issue); A. Bizetti, University of Florence Report No. 86, 1986 (to be published); M. Milgrom, Institute for Advanced Study Report, 1986 (to be published); D. A. Neufeld, Phys. Rev. Lett. **56**, 2344 (1986) (this issue).

[7]J. Barnothy, private communication.

[8]S. C. Holding, F. D. Stacey, and G. J. Tuck, Phys. Rev. D **33**, 3487 (1986).