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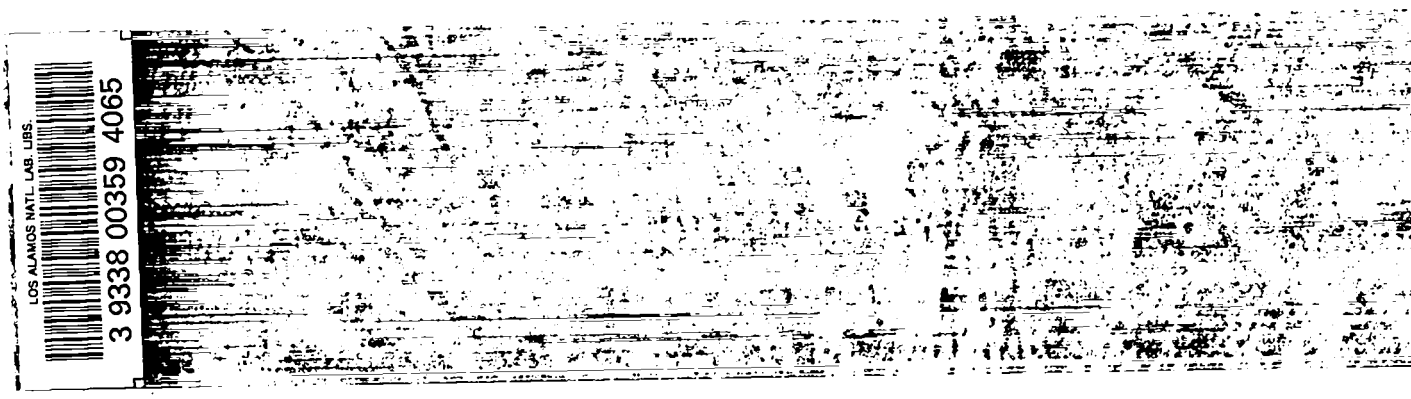
SUMMARY OF NEUTRON-INDUCED FISSION CROSS SECTIONS



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LOS ALAMOS SCIENTIFIC LABORATORY
OF THE UNIVERSITY OF CALIFORNIA LOS ALAMOS NEW MEXICO

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SUMMARY OF NEUTRON-INDUCED FISSION CROSS SECTIONS*

by

R. L. Henkel

*This report supersedes part of LA-1714

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A recent compilation of high-energy neutron data[1] has been made for fissionable nuclei. Included were measurements of the fission cross sections for U^{233}, U^{235}, U^{238}, and Pu^{239} which were much more complete than the earlier summary given in LA-1714.[2] In view of the probable interest in the practical application of these measurements, it seemed desirable to distribute the results in a form which would allow the determination of cross section values with accuracies comparable with experimental uncertainties.

Most of the data are from recent measurements, which as yet are not published, and probably give the best results available at this time. The descriptions of the experiments and the uncertainties of the results are given in reference 1 and will not be repeated here. In each case, the solid line (see Figs. 1 to 4) should indicate the probable cross section values. The position of this line has been influenced by the uncertainties in the results from the various measurements.

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1. D. W. Allen and R. L. Henkel, in Progress in Nuclear Energy, Series I, Vol. II, Pergamon Press Ltd., London (in press).

2. H. H. Barschall and R. L. Henkel, Los Alamos Scientific Laboratory Report LA-1714, August 1954 (classified).

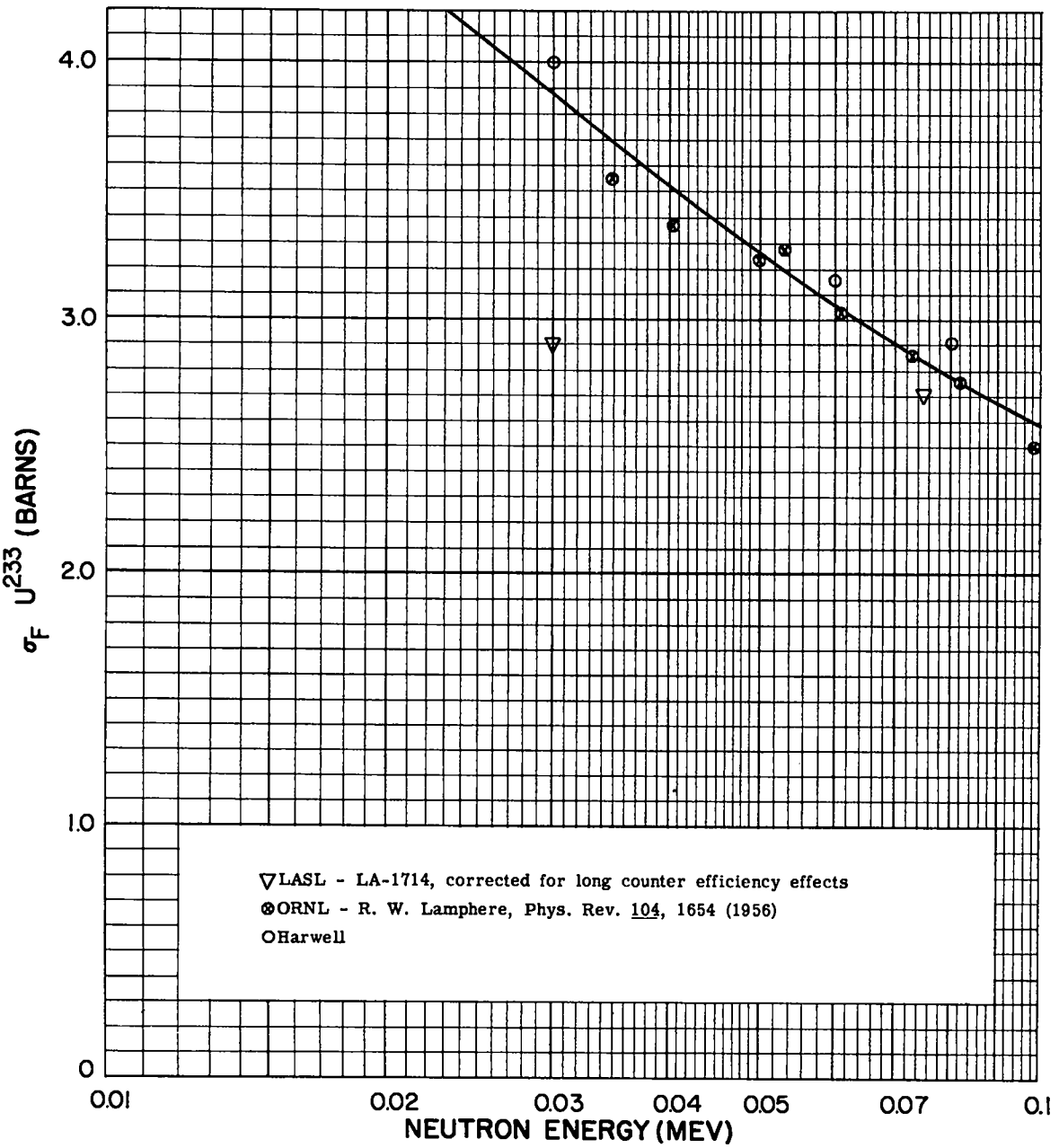

Fig. 1a Fission cross section of U^{233} from 0.01 to 0.1 Mev

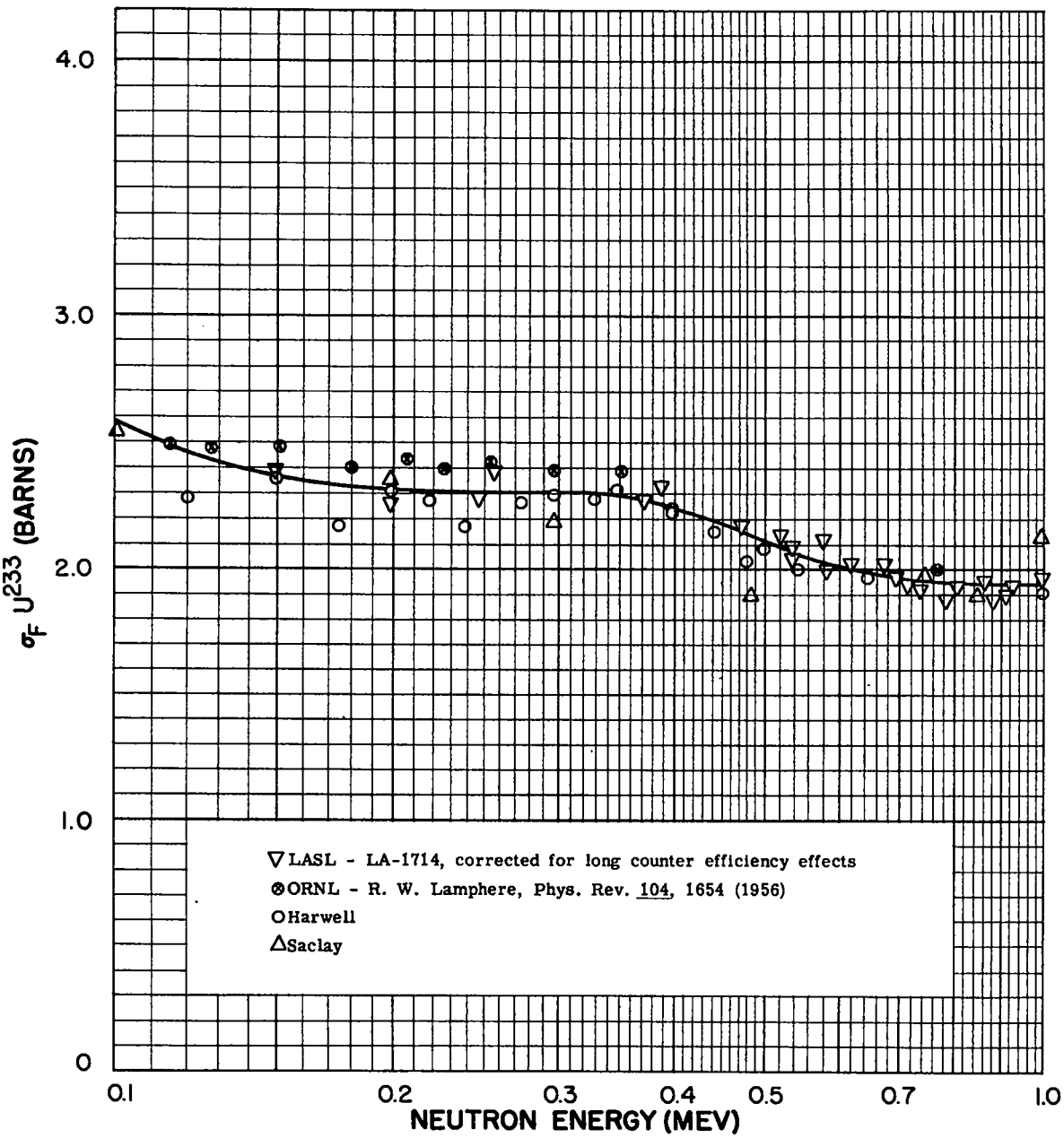

Fig. 1b Fission cross section of U^{233} from 0.1 to 1.0 Mev

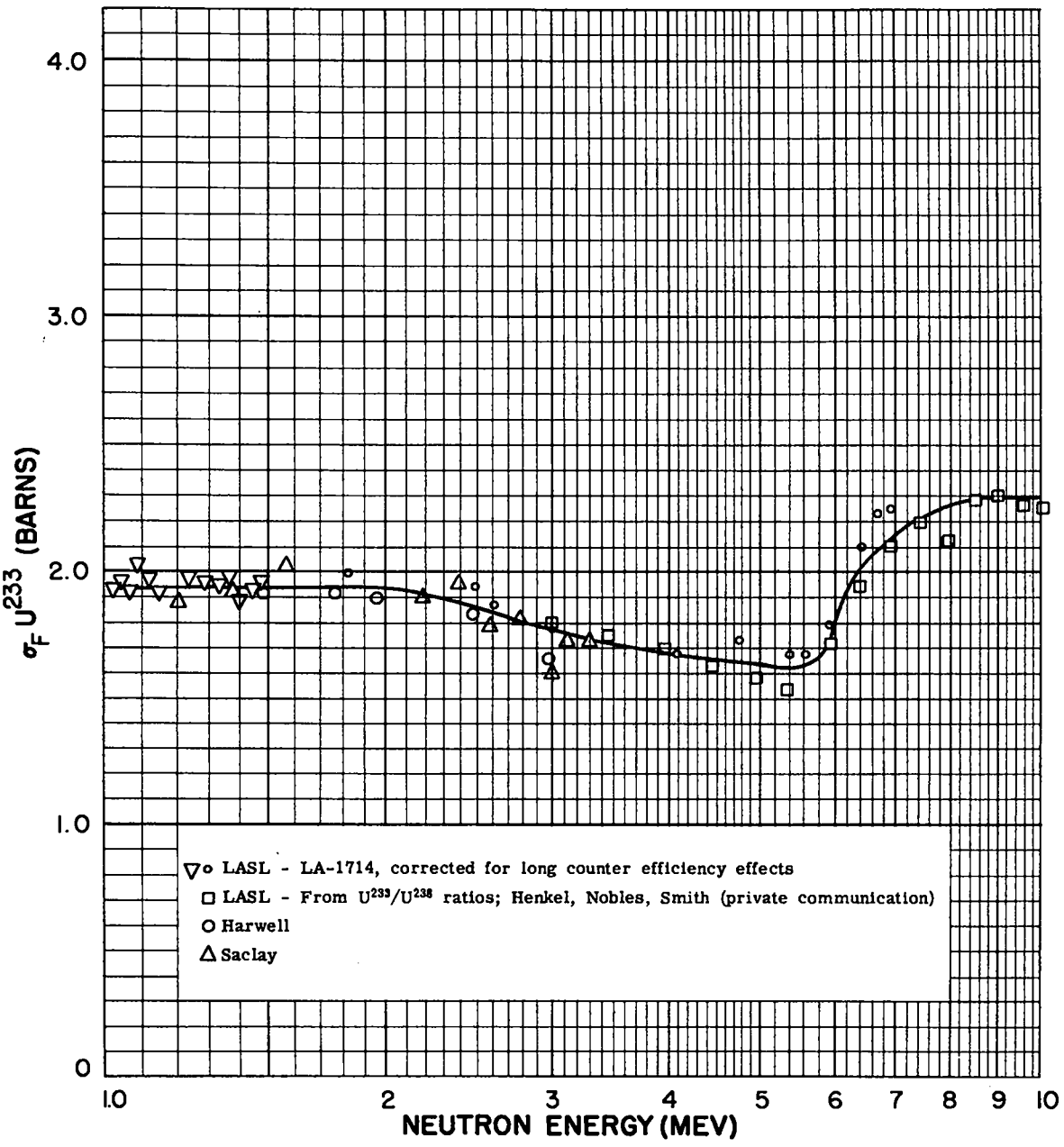

Fig. 1c Fission cross section of U^{233} from 1.0 to 10 Mev

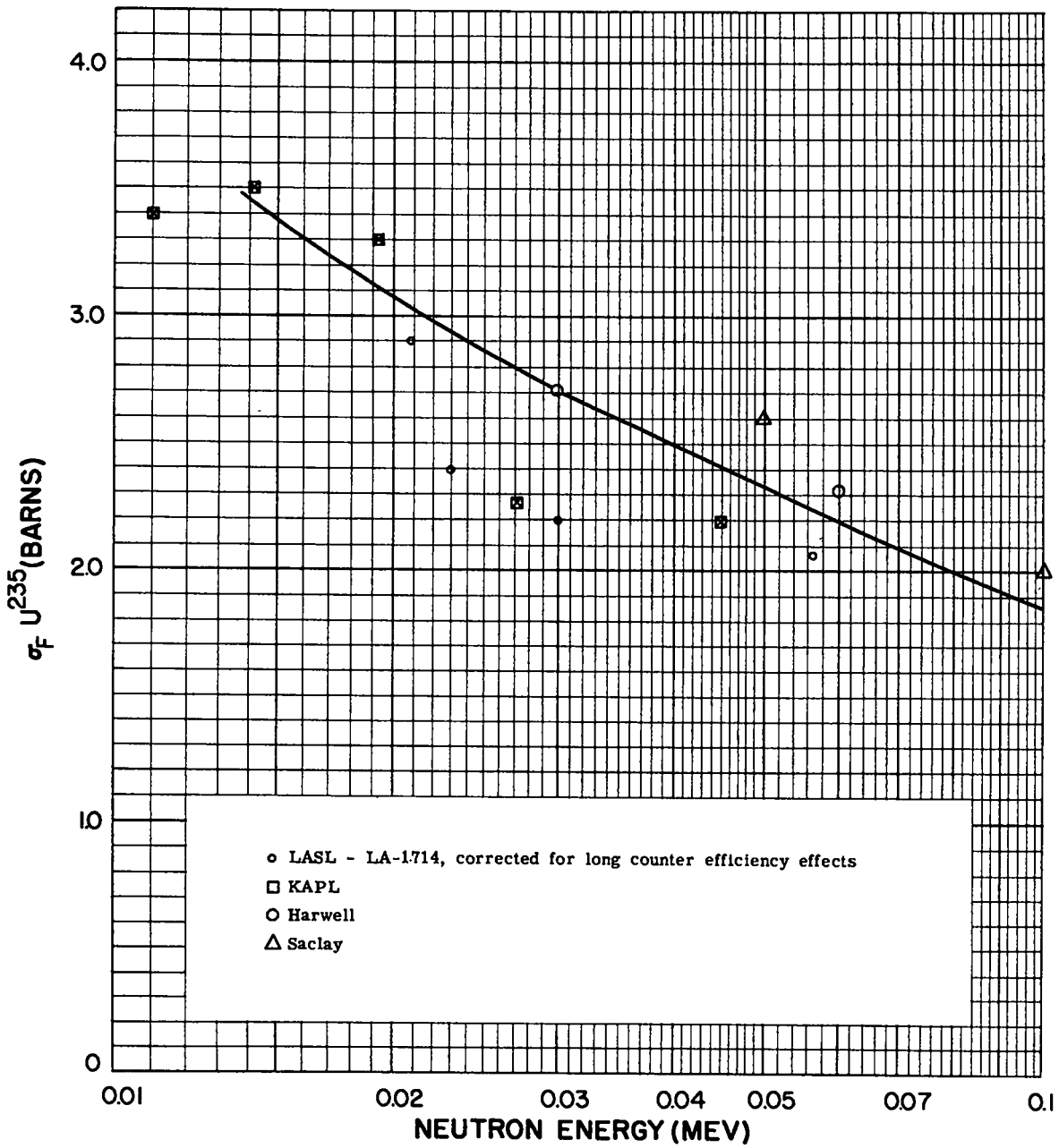

Fig. 2a Fission cross section of U^{235} from 0.01 to 0.1 Mev

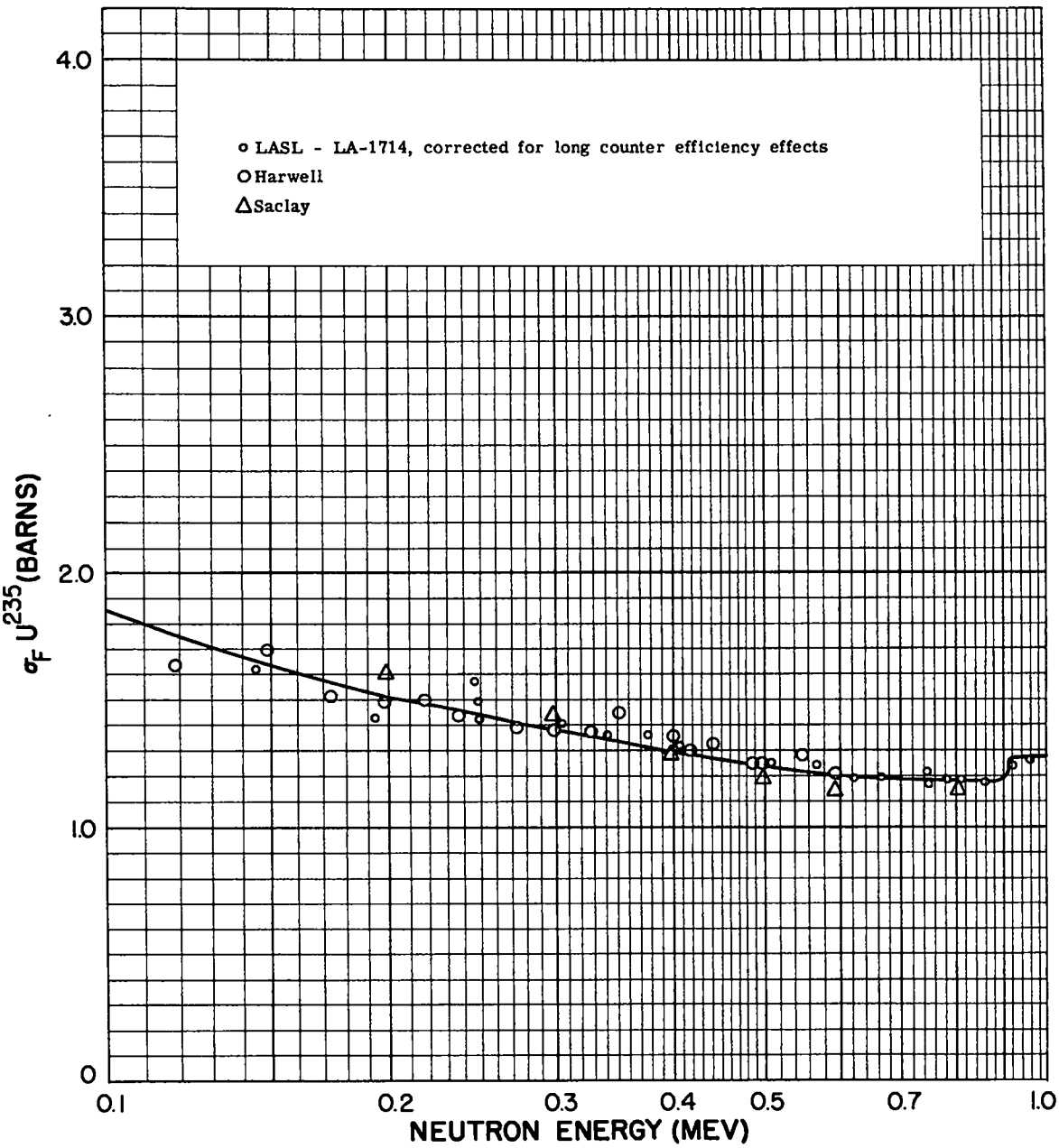

Fig. 2b Fission cross section of U^{235} from 0.1 to 1.0 Mev

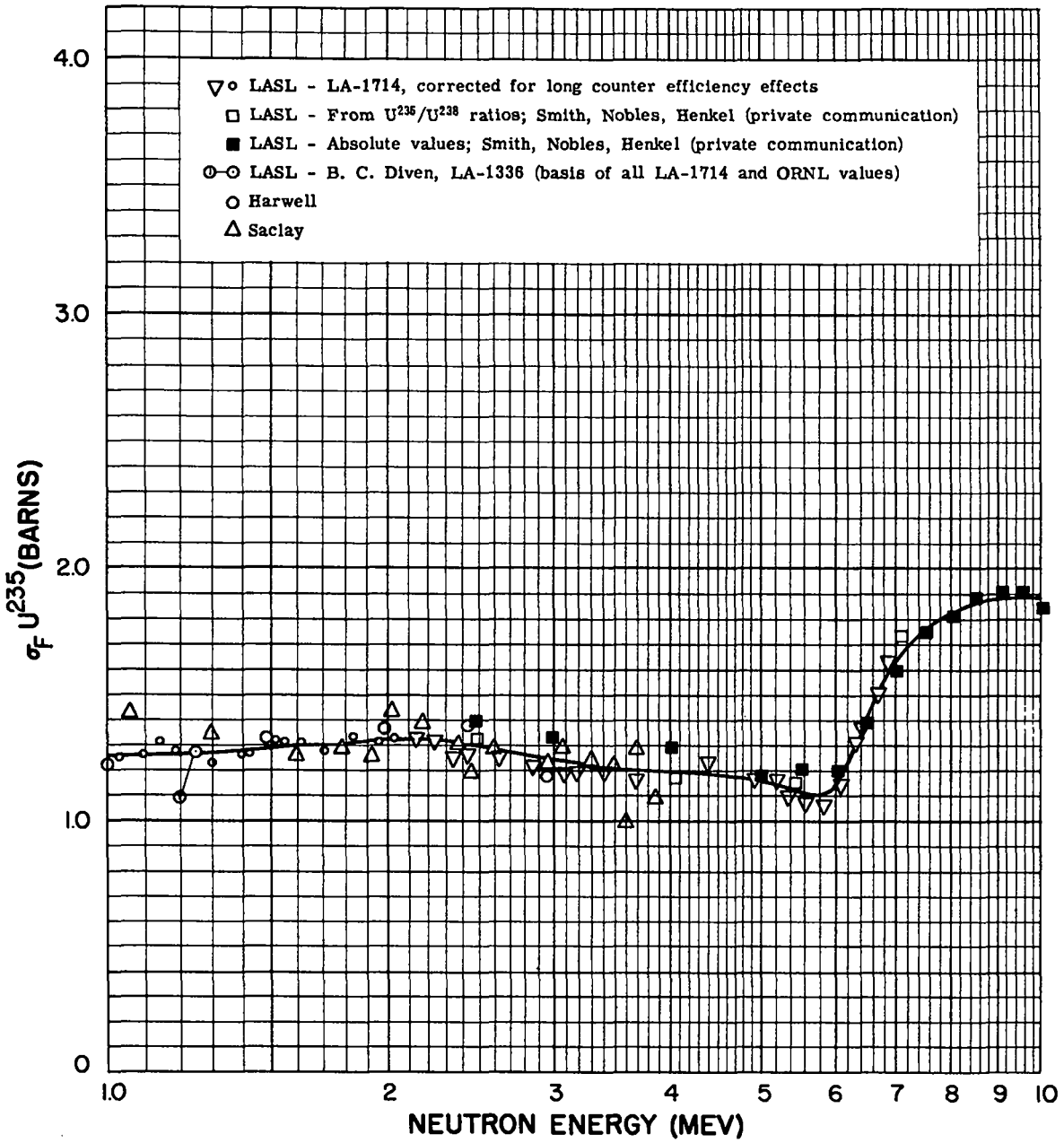

Fig. 2c Fission cross section of U^{235} from 1.0 to 10 Mev

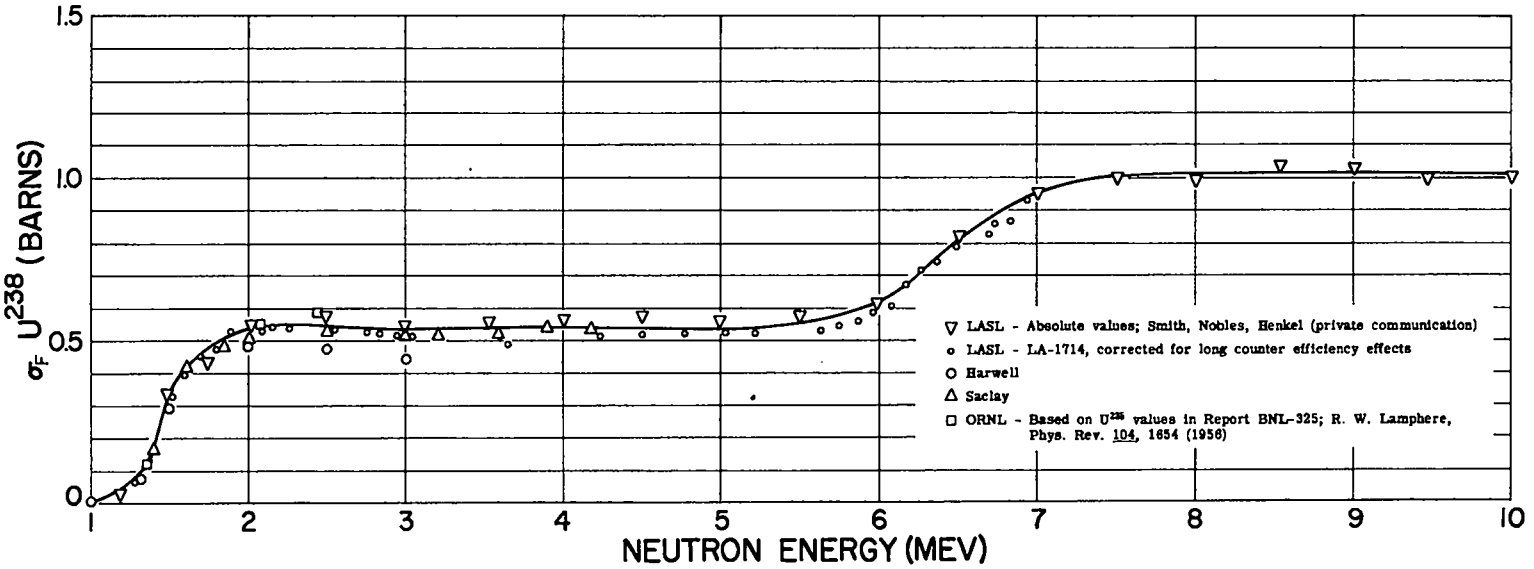

Fig. 3 Fission cross section of U^{238} from 1 to 10 Mev

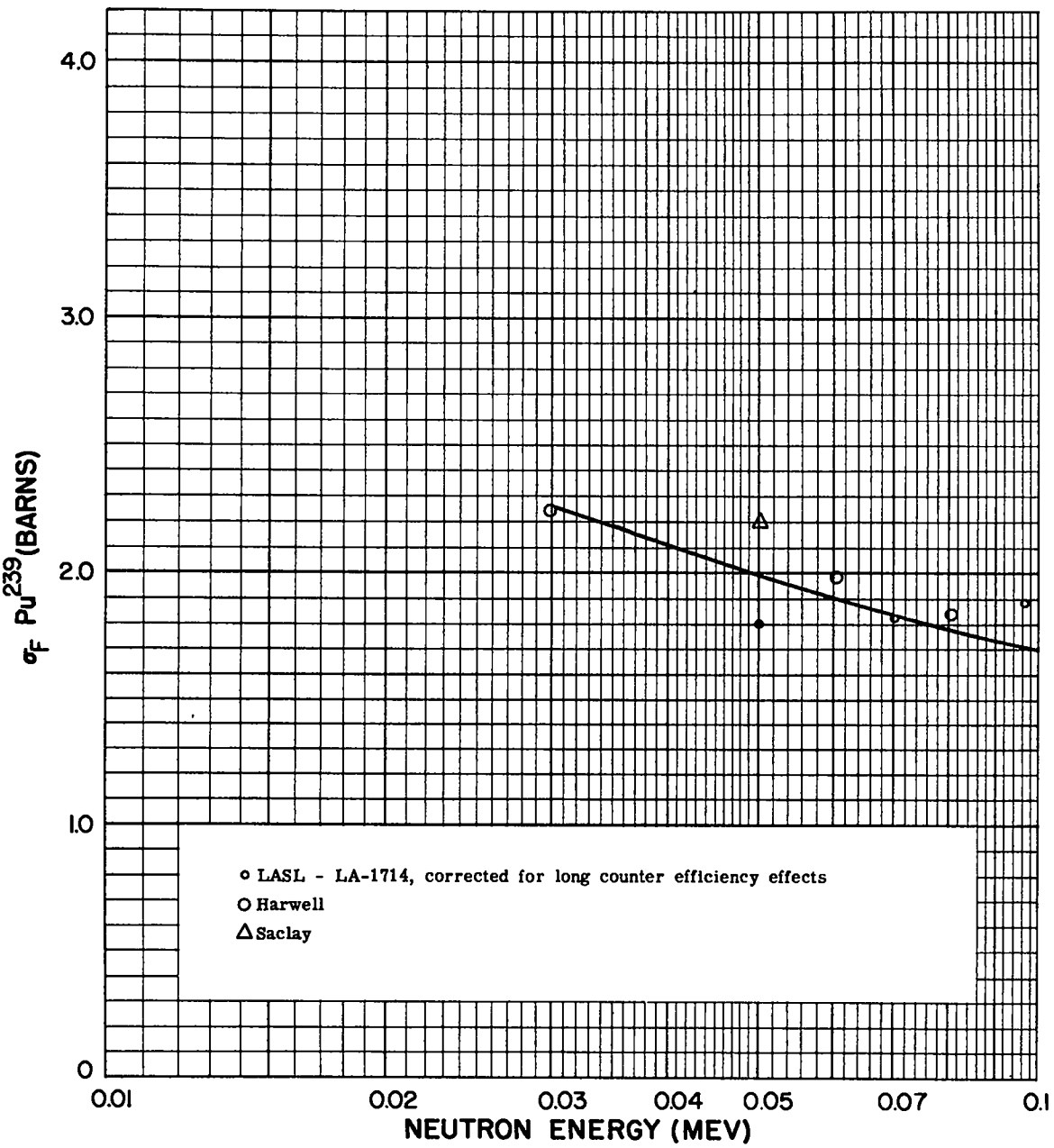

Fig. 4a Fission cross section of Pu^{239} from 0.01 to 0.1 Mev

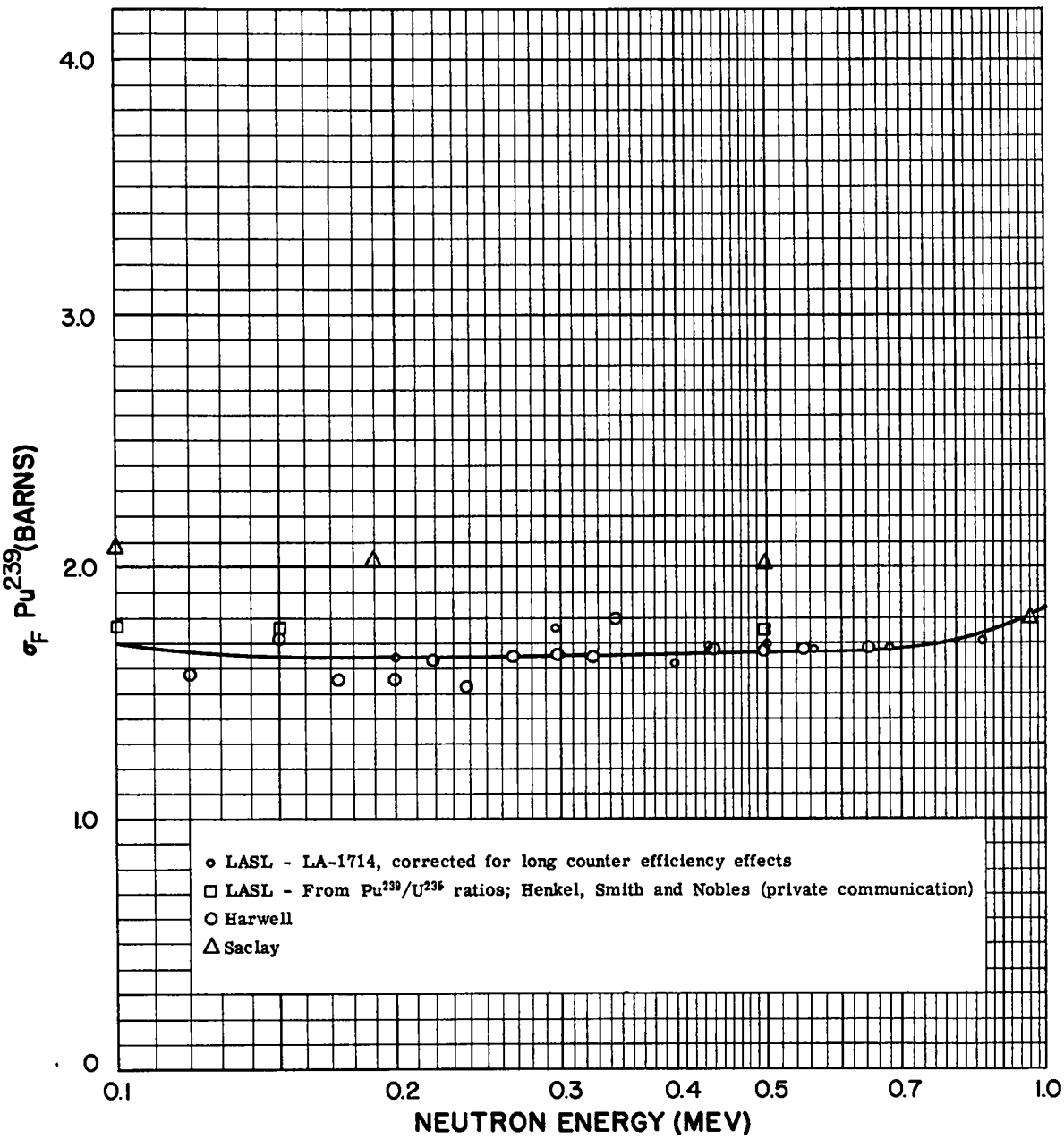

Fig. 4b Fission cross section of Pu^{239} from 0.1 to 1.0 Mev

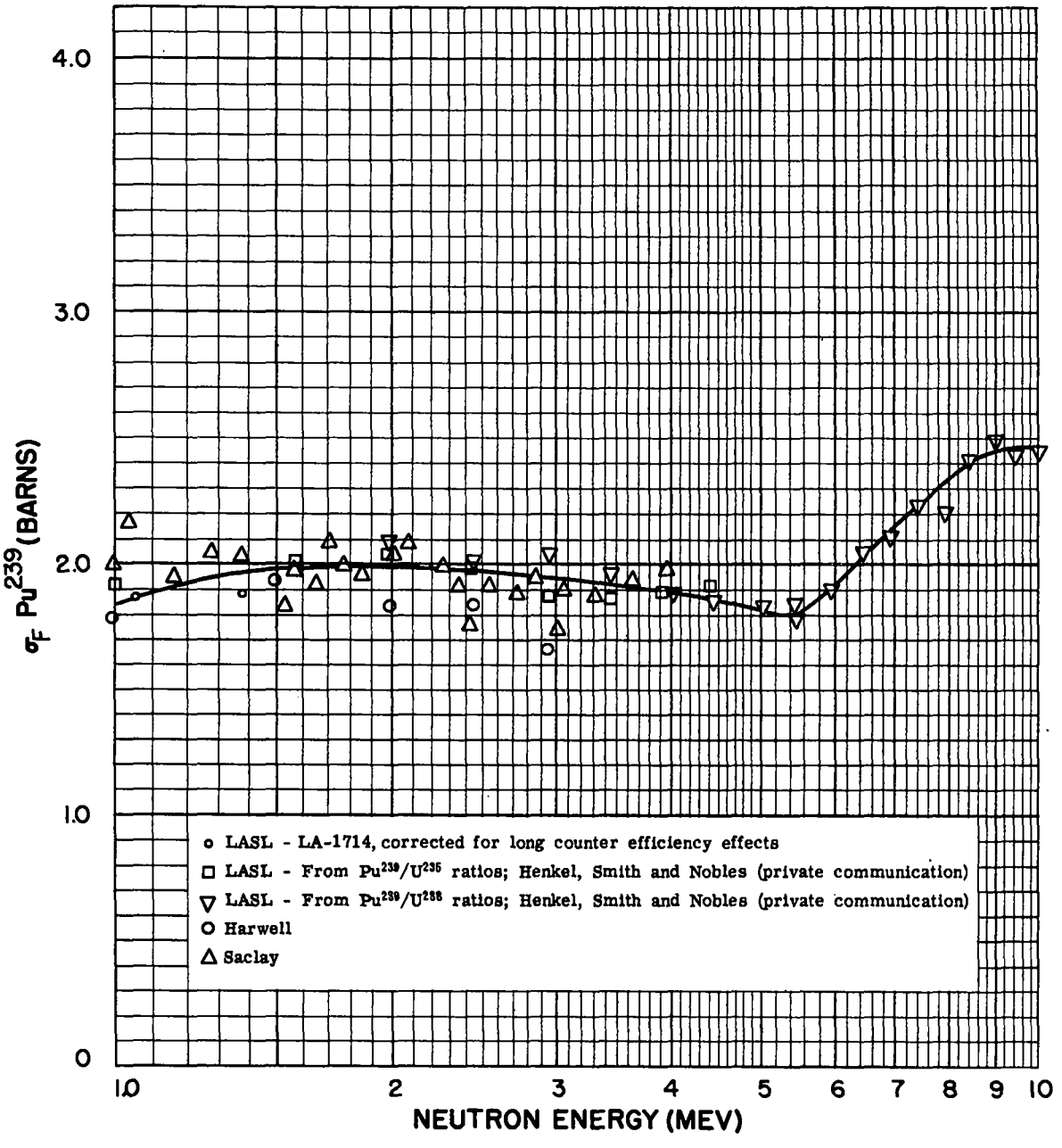

Fig. 4c Fission cross section of Pu^{239} from 1.0 to 10 Mev