APPENDIX

EXPERIMENTAL DATA

The following represents the actual data taken and the temperature corrections made from the experimental runs on lead. Although pressure increments of 200 psi (ram oil pressure) were taken in the runs, the corrections below were made only for pressure increments of 1000 psi (ram oil pressure). The detailed data taken on each of the runs on lead and zinc can be found in the journal of experimental runs in the High Pressure Laboratory at Brigham Young University.

As has been previously discussed, the runs on lead had to be temperature corrected because of the geometric location of the thermocouple junction.

Each of the runs were plotted and the curves obtained were extrapolated from 1000 psi (the lowest ram pressure at which readings were taken) to zero ram pressure. The temperature corresponding to this point was taken as t_{m_o}. The ambient temperature, t_{a_o}, was taken as the temperature to which the thermocouple junction dropped immediately after shutting the heating power off after melting was detected. Using the values for these temperatures in the heat correction equation

$$t = t_m + k(t_m - t_a)$$

along with the normal melting temperature, t, of lead, the constant k can be determined. The entire experimental curve can then be corrected, using this value of k.

The following headings will be used in listing the data:

P (psi) Oil pressure in the rams of the small presses, with 8" diameter rams.