The primary calibration was carried out by using the phase transitions observed by Bridgman[1] in bismuth at 24,700 atmospheres and in tellurium at 43,500 atmospheres. The secondary standard is the shift with pressure of the 2210 cm^{-1} vibration of CN^- ion dissolved by fusion in NaCl[2]. This vibration shifts continuously to the "blue" (higher frequencies) with pressure. The data can be fitted by the equation

$$p = 0.965\,\Delta\bar{\nu} + 4 \times 10^{-3}\,(\Delta\bar{\nu})^2 + 5.3 \times 10^{-5}(\Delta\bar{\nu})^3$$

where $\Delta\bar{\nu}$ refers to the change in frequency from the atmospheric pressure value in cm^{-1} and p is the pressure in thousands of atmospheres.

Cell I fails somewhere above 60,000 atmospheres because the moving carboloy piston breaks in compression.

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1. Bridgman, P. W., Proc. Amer. Acad. Arts and Sci., 74, 425, 1942.
2. A detailed discussion of pressure effects on the CN^- stretching frequency will be published elsewhere.

Cell II

Cell II utilizes the same principles described for Cell I plus one further development. The pistons are much larger in diameter with a corresponding change in insert size, window holes, etc. Typical dimensions are summarized in Table I. The pistons are tapered with a flat section 3/32" in diameter in the center. (This is the smallest