in place. The ceramic tube was epoxied to the stainless steel at the start of the experiment. The seal design quickly locked the ceramic tube in place as pressure was applied. All runs were inspected for movement of the thermocouple. This was not a problem at temperatures to 400°C. We occassionally had movement before using the epoxy but never after; those runs were discarded. It will be necessary to modify the high temperature seal for work at higher temperatures.

Behind the seal was a tungsten carbide bushing whose I.D. was slightly larger than the ceramic tubing. The high compressive strength of the WC was used to keep the pressure on the wire at 1 atmosphere.

Because the magnitude of the pressure emfs are 10's to 100's of microvolts it is necessary to measure the voltage to an accuracy of 1 μv. Large currents in the vicinity of the thermoelectric element could induce voltages and limit the accuracy of the measurements. A.C. pickup would require filters, etc. We have specially designed our high temperature furance to eliminate or reduce these problems.

The furnace shown in Figure 3 is a graphite spiral in the talc. This is accomplished by making a graphite screw which is threaded and cemented into the talc and then has the center machined out. The resistance of our furnace was about 30 ohms. We were able to reach 400°C with only 3 amps current. This low current and coil geometry combine to eliminate problems with induced voltages in the experiment. This is a much more desirable configuration that the solid carbon resistance tube heater normally used in high pressure experiments.