

The layout of the apparatus is shown in figure 1. Helium at about 100 atm was introduced into the transmitter, *E*, through the high-pressure valve, *G*. *E* consisted of a steel U-tube containing mercury and was used to transmit to the helium the pressure generated in oil by the high-pressure pump, *F*. Details of the design of this transmitter have already been given in a recent paper (Holland *et al.* 1951).

After compression in the right-hand limb of *E*, the helium was transmitted to the calorimeter, *I*, in the cryostat, *L*, through a capillary tube of 18/8 austenitic

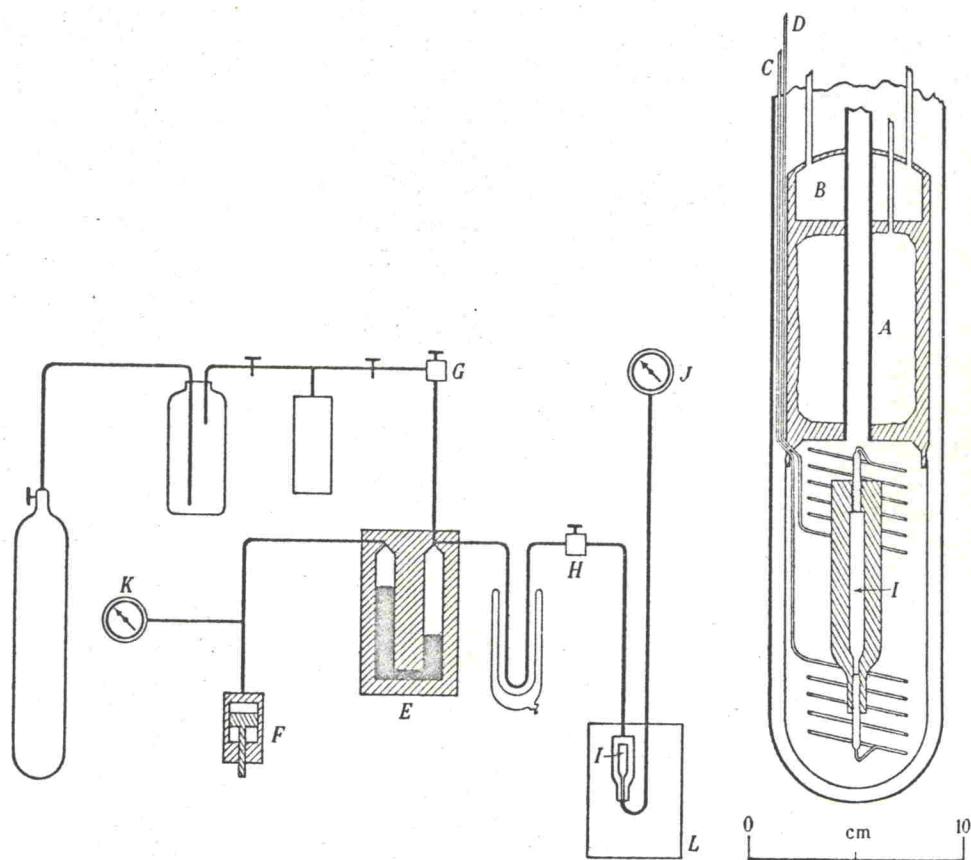


FIGURE 1. Lay-out of the apparatus.

FIGURE 2. The calorimeter and cryostat.

stainless steel. This tube was interrupted at *H* by a second high-pressure valve so that the calorimeter, once filled to a suitable density, could be isolated from the rest of the high-pressure circuit.

A second stainless steel capillary connected the other end of the calorimeter to a Bourdon gauge, *J*. This, in conjunction with that on the pump, *K*, could be used to ensure that the pressure was actually transmitted to the calorimeter. The gauge, *J*, was filled with mercury so that its dead volume was very small.

The calorimeter and cryostat are shown in detail in figure 2. *A* is the expansion chamber of the liquefier and *B* the hydrogen chamber. The calorimeter *I* is