Thus by placing the 10^5 gallons of C_2Cl_4 below 4000 m.w.e., providing fast-neutron shielding and insuring the Ca and S content is low, the expected solar-neutrino signal will be clearly above the background of the detector. If Ar^{37} is observed it may be attributed to a neutrino signal. The expected rate in the 610 tons is about 2 to 8 per day. With our expected sensitivity we can measure the presently calculated solar neutrino flux to 10 percent, or if the signal is below the presently calculated value we will be able to look for fluxes a factor of 10 lower. It would of course be important, if a definite signal is observed, to test whether the neutrinos are indeed coming from the sun. Since this method does not have directional sensitivity, one would have to look for a 7 percent difference in flux resulting from the eccentricity of the earth's orbit. At the levels presently calculated this would not be possible with 10^5 gallons. If a higher rate is observed this test could be made.

The general arrangement of the 100,000 gallon experiment is shown in Fig. 5. Shown here is a tank 20 feet in diameter and 48 feet long in a rock cavity. Provision is made to flood the cavity for a fast-neutron shield. The equipment for purging the liquid with helium will be contained in a separate cavity indicated as the process control room. The pumps for circulating the liquid through the eductor system will be located near the base of the tank but outside of the flooded cavity. We plan to have this apparatus ready for the first experiment early in 1966.