the volume of this dome corresponds to the free volume of the underground cavity.*

Because of insufficient knowledge of how to stem the gases in a nuclear explosion, a gaseous discharge was emitted from the Gnome explosion via a 1000-foot underground tunnel and a 1200-foot vertical shaft as shown in Fig. 6. The discharge consisted mostly of water vapor. Approximately 150 tons of water was boiled out of the salt and associated rock containing 1 or 2 percent fossil water. This vapor also carried along most of the gaseous radioactive products. Since the location and the meterological conditions had been chosen with the possibility of just such a discharge, the released radioactivity did not produce any damage. In fact, it was soon sufficiently dispersed as to fall below the level at which observation is possible. Due to these developments, however, we have gained the important knowledge that gaseous radioactivities produced in nuclear explosions underground can be readily and almost quantitatively recovered. Production of such radioactive materials might at some time become of economic importance.

But as to one of the original purposes of the Gnome explosion – to study the feasibility of recovering heat deposited by the nuclear explosion in salt – the answer we can now give is that it is not feasible. There is little doubt that in a repeated explosion the water vapor could become confined underground. However, when we dug into the Gnome cavity and made observations it was found that the water vapor entrained some of the salt. Due to the corrosive nature of this vapor, grave practical problems arise. It might be possible at some future time to deposit, by megaton explosions, enough heat

*Rawson, D. E., C. R. Boardman, N. Jaffe. The environment created by a nuclear detonation in salt, Project Gnome Report No. PNE-107F, Lawrence Radiation Laboratory, Livermore, California (to be published).