

In the midst of these training exercises, we got a shipment of uranium nitrate hexahydrate which had been bombarded in a cyclotron. This was the first shipment we got, and I think it came from Berkeley. (The later ones all came from the Washington University cyclotron in St. Louis.) This shipment had been packaged in little plywood boxes, out of whose joints the material was creeping. The standards of packaging then were quite relaxed, on a level the AEC would never accept today. The boxes were of all shapes and sizes to fit around the cyclotron snout with its neutron source. We had an estimate from the bombardment history that there were probably 100 micrograms of plutonium in this batch.

There we were confronted with something like 200 pounds of uranium nitrate hexahydrate and no place to work it up. The laboratory that we had been using was the university's large inorganic chemistry room on the fourth floor. But it wasn't large enough for the mining operation we had before us. Someone in the chemistry department proposed the old attic junk room, which was on the same floor. It was euphemistically called the storage area. All the equipment that had ever been used in research, and that no one wanted to throw out, was up there. We found stuff that dated way, way back to a time long before the building was built. And there were a lot of old crates lying around. We were told that if we could work around equipment and crates, we were welcome to the room.

Then we had to find equipment to use for a large-scale extraction. The first problem was to concentrate the plutonium from the uranium; an ether extraction seemed the only practical means for this. We snooped around the building and found a stock room with lots of goodies. Again we were very thankful that nothing was ever thrown away in this chemistry department. Somebody in days of yore had bought a quantity of large separatory funnels, 1 and 2 liter ones. At that time nobody did research requiring such funnels, but here they were, and we used them.

We placed uranium nitrate crystals in these separatory funnels, added ether, and shook them violently in front of our bodies with one finger on the glass stopper and another on the stopcock to prevent spillage. Seaborg gave us as many men as he could spare from the other work, and it was quite a sight to see the gang of us in that old attic shaking those funnels. The operation required keeping the funnel close to the body, and it was recognized that this could lead to sizable gamma-ray exposure from the fission products. No dosimeters were available (we would probably have been frightened by their off-scale readings if we'd had them), so Dr. Nickson, our medical man, had daily