

Before proceeding with a discussion of the other transuranium elements, I should like to say a few more words about neptunium. Another isotope,  $\text{Np}^{237}$ , was discovered early in 1942 in collaboration with Wahl (8). This isotope is the decay product of the previously (9,10) known approximately 7-day beta particle emitting  $\text{U}^{237}$  which is formed as the result of an n,2n reaction on  $\text{U}^{238}$ . The reactions for its production are shown in the next slide (Figure 6).

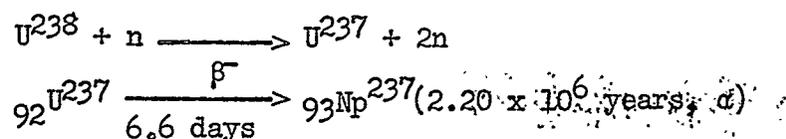


Figure 6

This isotope is of particular importance because it has a very long half-life and because it is available in weighable amounts. The first pure neptunium in the form of compounds of the isotope  $\text{Np}^{237}$  was isolated by L. B. Magnusson and T. J. LaChapelle (11) at the wartime Metallurgical Laboratory in October, 1944, and a picture is shown in the following slide (Figure 7). It is fortunately produced as a by-product in the chain reacting piles which has led to the isolation of gram amounts for research purposes. The chemical properties of neptunium in the macroscopic state have been studied with such material, and this has led to a thorough knowledge of the chemistry of this element.

After the completion of the most essential part of the investigations concerned with the chemical processes involved in the production of plutonium at the wartime Metallurgical Laboratory, our attention turned to the problem of synthesizing and identifying the next transuranium elements. As collaborators in this endeavor, I turned to