Although the uncertainties in the tracer experiments are largely due to the small amount of element 98 available, it can be concluded that the oxidation of the 45-minute isotope to the (IV) or (VI) states in aqueous solution even with these strong oxidizing agents is not possible or that the oxidation is slow. In connection with the rapid chemical separations used in this type of work, it is indicated that the introduction of steps to prevent oxidation during the separations are unnecessary.

The chemical properties of element 98 are discussed in somewhat greater detail in another publication.[15]

DISCUSSION OF RESULTS

The experiments and results which have been presented provide the evidence for the discovery of an isotope of element 98. That the 45-minute activity observed in the experiments is, beyond reasonable doubt, an isotope of element 98 has been proved by the following essentially independent means:

(1) It separated in the eka-dysprosium position expected for element 98 in elutriant fractions from the Dowex-50 resin columns in which ammonium citrate was used as the eluting agent. The relative spacing between the new activity and its actinide neighbors is remarkably similar to the relative spacings between the homologous rare earth elements.

(2) Its distinctive high alpha-particle energy proves that it must be an isotope of an element above lead in the periodic table. The chemical experiments done on the new isotope distinguish it from all such previously known elements of atomic number 82-97 inclusive. Therefore, the new activity must be an isotope of element 98.

The mass assignment of the 45-minute isotope of element 98 must remain tentative for the present, pending experimental proof. Its assignment as 98^{244} is suggested as being most likely on the basis of estimates using the systematics of

[15] Street, Jr., Thompson, and Seaborg, J. Am. Chem. Soc. (to be published).