studies which assigned a 3-sec half-life to $^{254}_{102}$No by observation of what was thought to be $^{250}_{100}$Fm were probably erroneous. What was probably being observed was the sequence

$$^{252}_{102}\text{No} \xrightarrow[t_{1/2} = 2.3 \text{ sec}]{\alpha} {}^{248}_{100}\text{Fm} \xrightarrow[t_{1/2} = 36 \text{ sec}]{\alpha} {}^{244}_{98}\text{Cf} \xrightarrow[t_{1/2} = 19 \text{ min}]{\alpha}$$

in which the 19 min. $^{244}_{98}$Cf granddaughter (E_α = 7.21 MeV) was mistaken for the 30 min. $^{250}_{100}$Fm (7.43 Mev). The ion exchange elution curve showing 11 atoms of $^{250}_{100}$Fm to appear in the proper position remains as the first definitive evidence for the production of element 102. The errors in this experiment indicate the difficulties associated with "one-atom-at-a-time" studies.

A parallel line of research on element 102 was carried out by G. N. Flerov and co-workers in the Kurchatov Institute in the USSR. In an experiment reported in 1958 Flerov et al. studied the reaction of $^{239}_{94}$Pu with $^{16}_{8}$O ions, reporting an alpha-emitter with E_α = 8.9 MeV and $2 < t_{1/2} < 40$ sec. (22). In 1964 E. D. Donets, V. A. Schegolev, and V. A. Ermakov (23) of the Dubna laboratory reported the production of the new isotope $^{256}_{102}$No using recoil techniques with chemical identification of the alpha-emitting daughter $^{252}_{100}$Fm. The first correct identification of the half-life of $^{254}_{102}$No was in 1966-67 by groups working at Dubna.

In summary one can say that the Berkeley group was the first group to clearly identify the atomic number of element 102 (i.e., to "discover" it) but important contributions to the definitive establishment of the existence of element 102 were made by the Soviet research scientists. Since the name nobelium and symbol (No) for this element are in common use, the Berkeley scientists have suggested retention of the name suggested in the original, incorrect Stockholm experiment, and this name and symbol have been accepted by the IUPAC.

Lawrencium (103)--the last actinide element

The first identification of an isotope of element 103 was by Ghiorso, Sikkeland, A. E. Larsh, and R. M. Latimer in 1961 (24) (Figure 17). Three micrograms of a mixture of californium isotopes (A = 249, 250, 251, 252) were bombarded with heavy ion beams of ^{10}B and ^{11}B at the Berkeley HILAC. Atoms recoiling from the target were caught by a long metallized mylar tape which was moved past a series of α-particle detectors. A new α-emitting nuclide with $E\alpha$ = 8.6 MeV and $t_{1/2}$ ~8 sec. was observed and assigned to $^{257}_{103}$Lr. Later experiments indicated that this activity was due to $^{258}_{103}$Lr ($E\alpha$ = 8.6 MeV, $t_{1/2}$ = 4.3 sec.).